

WHO PAYS WHAT

An Analysis of Beverage Container Recovery and Costs in Canada



2010



Produced by CM Consulting

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A Primer

Beverage container recovery continues to emerge as a challenging and highly political issue for industry and governments. As the recycling sector has evolved so too has a range of recovery initiatives, each emphasizing their own strategic value. In assessing these initiatives it's remarkable how varied the data is despite the common aspects of these programs – factors such as recycling performance, net costs, collection infrastructure, operating agencies, and the breakdown of who ultimately bears the costs of recovery.

Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada aims to report, clarify and offer essential insight into the field of beverage container recovery programs. By providing current data, discerning analysis and identifying a number of trends in beverage container recovery, the report offers a comprehensive examination of container reuse and recycling programs in Canada today.

Developed by CM Consulting, *Who Pays What*™ features the most recent recovery and cost data concerning beverage container recovery programs - information that is thoroughly researched and clearly organized.

This 2010 report is the forth edition of *Who Pays What*™. Published biannually, it is embraced as an essential resource for professionals in the beverage industry and recycling field. *Who Pays What*™ is a valuable tool and dependable reference guide that can ease the decision-making process.

The principal of CM Consulting, Clarissa Morawski, is a waste minimization policy professional dedicated to the varied issues that comprise beverage container recovery. Morawski's expert understanding of the industry is further evidenced by the 40 articles she has contributed to a variety of trade publications. She is also a noted speaker at environmental and recycling conferences throughout North America, and teaches waste reduction policy at Trent University in Peterborough.

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Changes, Challenges and Opportunities

The economic downturn of 2008-2009 inflated the costs of beverage container recovery due to the deflated market value of secondary commodities like plastic, metal and glass. A depressed market both domestically and off-shore witnessed an increase in available supply and resulted in markets discriminating against lower quality materials. Meanwhile, sub-standard material may have required further processing, landfilling, or warehousing for another time. At the same time, the high cost of fuel and labour continued to elevate program costs.

Yet in these difficult economic times, new technologies for improved efficiencies have proven a welcome investment. Compactors built for beverage containers in reverse vending machines, on trucks and in processing centers all provide tremendous benefits by reducing the amount of space used. Reduced space requirements translate into fewer trucks, less labour and a smaller physical footprint used to store containers. Compaction technology can reduce transport costs alone by more than 40%.

Leading-edge measurement tools that emphasize the environmental benefits of recycling from a life cycle perspective offer a wealth of insights that can assist policy development and planning processes. One such tool is the *Measuring the Environmental Benefits Calculator*, known as “MEBCalc.” Developed by Sound Resource Management, *MEBCalc* tallies all of the pollution created and determines all the pollution avoided thanks to diversion. For example, upstream savings in mining, drilling for oil, transport, and logging are realized when secondary resources are used instead of virgin resources. Together the results offer a greater understanding of not just the pollution created or avoided, but what that impact is on human health.

The ongoing trend towards reducing the impact of greenhouse gases and climate change has also inspired greater activity in reusing and recycling more beverage containers. Throughout North America, new deposit return programs are undergoing expansion while new initiatives appear regularly. Alberta this past year became the first province to expand its program to include milk containers under deposit. The states of Oregon, New York and Connecticut all extended the scope of beverage containers covered in their respective deposit return programs. In many non-deposit jurisdictions the beverage industry is engaged in initiatives that target the recovery of more containers from public spaces and commercial establishments, even going so far as to finance a portion of these costs.

In central Canada (Ontario and Quebec) brand-owners and first importers finance the bulk of the costs associated with container recovery and recycling. Here, industry pays municipalities to collect, process and market recyclables. In addition, with this new injection of municipal program funding, many municipalities have introduced public space recycling bins and regular collection. These costs will likely be absorbed by industry through proposed legislation. For instance, both the Province of Ontario and Quebec have clarified that future policy will include up to 100 percent of industry financing with high material-specific targets. In Manitoba, the province recently introduced an 80% industry financing model (which commenced on April 1st, 2010) and mandates 75% recovery.

In Canada's eastern regions and western locales, comprehensive deposit return programs are financed in large part by consumers. Those that do not recycle their container pay a large part of the program costs (through their forfeited deposit), while consumers that do recycle partially pay for the system when they return containers for refund.

Canada's overall recovery rate for refillable and non-refillable bottles is estimated at 66%. Of this amount, refillable beer, representing a minority of total beverage sales (19%), is recovered at a collection rate of 98%. Non-refillables, which comprise the majority of containers (81%) has an estimated collection rate of about 59%.

These are interesting times for the beverage industry. As bottlers, distributors and retailers assume a greater responsibility in the end-of-life management of their packaging. These companies are not just interested in carrying out these programs at an economical cost, but they aim to achieve a high level of performance and consumer acceptance while ensuring there is limited to no impact on their sales. Canada offers an assortment of program models, some of which are currently – or soon to be – the beverage industry's financial, or physical, responsibility.

Combined, Canadian deposit systems have a total recovery rate of 83%, while non-deposit systems have a total recovery rate of 41%, when all containers sold and recovered at home and away-from-home are accounted for.

Who Pays What™ 2010 contains information and data (for the reporting period of 2008-2009) that will provide a clear and concise picture of program models, their effectiveness and their costs. This fourth edition offers historical perspectives on collection handling fees, consumer fees and stewardship levies.

I trust you will find this report to be informative in your efforts. Please do not hesitate to contact me if you require other data or further analysis.

Respectfully yours,



Clarissa Morawski
Principal, CM Consulting



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The gathering of accurate and detailed information, analysis, and peer review could not have been achieved without the generous assistance of certain individuals whose work supports beverage container recycling in Canada.

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Abbreviations and Acronyms

| | |
|--------------------------|---|
| AB..... | Alberta |
| ABCRC..... | Alberta Beverage Container Recycling Corporation |
| ABCC..... | Alberta Beer Container Corporation |
| ADC..... | Alberta Dairy Council |
| ABDA | Alberta Bottle Depot Association |
| BC | British Columbia |
| BCMB..... | Beverage Container Management Board |
| BDL | Brewers Distributors Limited |
| CBCRA..... | Canadian Beverage Container Recycling Association |
| CHF..... | Container Handling Fee |
| CRF | Container Recycling Fee |
| EEQ..... | Eco Entreprises Quebec |
| EHC..... | Environmental Handling Charge |
| GJ..... | Gigajoules |
| HDPE..... | High Density Polyethylene |
| IC&I..... | Industrial Commercial and Institutional |
| IWMC | Integrated Waste Management Corporation |
| LDB | Liquor Distribution Branch (BC) |
| MB | Manitoba |
| MEBCalc | Measuring Environmental Benefits Calculator |
| MPSC | Manitoba Product Stewardship Council |
| MMSB..... | Multi-Materials Stewardship Board |
| MMSM..... | Multi-Materials Stewardship Manitoba |
| MTCO _{2e} | Metric Tonnes of Carbon Dioxide Equivalent |
| NB..... | New Brunswick |
| NF | Newfoundland and Labrador |
| NS | Nova Scotia |
| ON | Ontario |
| PEI | Prince Edward Island |
| PET..... | Polyethylene Tetraphthalate |
| PS..... | Polystyrene |
| PVC..... | Polyvinyl Chloride |
| QC..... | Quebec |
| RRF..... | Recycling Fund Fee |
| RRFB | Resource Recovery Fund Board |
| RQ..... | Recyc-Quebec |
| SD | Soft Drink |
| SO | Stewardship Ontario |
| SK..... | Saskatchewan |
| TBS..... | The Beer Store (A.K.A Brewers Retail Inc.) |
| US | United States |

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Alberta

The Province of Alberta increased the level of its deposits from 5-cents to 10-cents, and 20-cents to 25-cents on November 1, 2008. After only 11 months, the Province reported an increase in total recovery rate of 5 points, from 76% to 81%. Note: This report presents 2008-2009 data, and therefore this increase in recovery will not be reflected in the collection rate chart presented in section 1.3, but the increase is noted.

In terms of the impact of the increased deposit levels on beverage container sales, according to the sales data provided by distributors to the Beverage Container Management Board (BCMB), sales continued a steady, un-interrupted increase from 2006 through 2009.

In November 2009, Alberta became the first jurisdiction in North America to introduce a deposit on all milk and liquid cream beverage containers. The deposits are 10-cents for containers under 1 litre and 25-cents for containers over one litre.

Since the implementation of deposits on milk, according to Alberta Environment, the rate of recycled cartons grew from 22.5% to 61% and the rate of plastic jugs from 61% to 71%. The Alberta Dairy Council reports that new deposits have not had an impact on sales.

Manitoba

On September 24, 2009 the Minister of Conservation for the Province of Manitoba approved a program plan for packaging and printed paper recovery in the Province, which would replace the previous program. This new program is modelled after the industry-funding programs currently operating in Ontario and Quebec, where stewards (brandowners or first importers) of packaging, including all beverage related consumer packaging must finance a portion of the costs associated with the recycling program. In Manitoba's case, that portion is 80%.

The plan provides details on how waste packaging material and printed paper from households across Manitoba will be diverted it from landfill. The plan also defines a funding formula that will be used to calculate industry payments (stewardship fees) as well as outline funding provisions to support market research, public education, and promote material reduction and recycling. The new program commenced on April 1, 2010.

Unique to the Manitoba program is a specific performance target of at least 75% recovery of beverage containers. As such, the plan contains enhanced programs for litter, plastic bags and beverage containers. In addition, Multi-Materials Stewardship Manitoba (MMSM) can deliver program elements, like public space and public event recycling, and education or full service recycling when more cost effective than municipalities.

The recently formed Canadian Beverage Container Recycling Association (CBCRA) is voluntary organization made-up of the grocery sector and beverage companies. CBCRA is focused on implementing and financing an away-from-home recovery program which will help achieve the mandated 75%. The program is funded through a 2-cent Container Recycling Fee (CRF) which is voluntarily paid by most beverage distributors (covers more than 90% of beverages) and is, in the majority of cases, passed on to the consumer at the point of purchase. Together, these funds will finance both the away-from-home strategy and their municipal curbside obligation (of 80%).

Ontario

The expanded deposit return program for wine and spirit containers, which was implemented in February 2007 is now in its forth full-year of operation. The program saw significant increases in overall recovery, from 67% in 2007-2008 to 73% in 2008-2009. Estimates for 2009-2010 are upwards of 77%.

In October 2009, the Ontario Minister of Environment announced his policy direction for waste in the province, with specific areas in which the existing Waste Diversion Act would be amended. Among the suggested policy changes is to make individual producers fully responsible for meeting waste diversion requirements for waste from both the residential and away-from-home sectors. In addition, producers will be required to meet outcome-based performance standards either on their own; through a third-party collective, or face penalties for non-compliance. The consultation phase of the process was completed in February 2010 and draft regulatory amendments are expected in the fall of 2010.

In short, these changes will likely mean 100% financial responsibility for packaging recovery in Ontario by stewards (brandowners and first importers), and the program scope will be increased to capture beverage containers from away-from-home and commercial locations.

Quebec

In November 2009, the Province issued their official policy on residuals management, in which they state that they prefer the curbside recycling program for the collection of all packaging and printed papers, including soft drink containers. However, unless the beverage industry can prove that they can achieve 70% recovery through alternative mechanisms to the existing system, deposit return for beer and soft drinks will remain in place. In addition, in the short term, the Ministry also stated that if the recovery rates do not increase to 70% or greater in the next two years, the government may actually increase the level of the deposit on these containers.

On March 17, 2010, Quebec's Minister of Sustainable Development, Environment and Parks tabled Bill 88 which establishes the framework for industry contributions towards Quebec's municipal recycling programs. More specifically, the Act outlines that industry's contribution will cover a share of the costs associated with collection, transportation, sorting, conditioning, and indemnity for the management of the program. The Act establishes that the share of industry compensation cannot exceed 70% in 2010; 80% in 2011 & 2012; and 90% for 2013 & 2014, excluding payments for administration.

This year also marks the half-way point in a four-year project funded by beverage and related industries to capture a greater number of containers consumed away-from-home. With its \$6M dollar mandate (for 3 years) the initiative focuses its financing on capturing increased volumes from municipal public spaces through the acquisition of bins; and bar and restaurants through bins and in some cases, funding collection and processing of recyclables as well.

Both performance data and total cost data will be of great interest to all members of the beverage industry. This is especially relevant when Canada's largest provinces (Ontario and Quebec) will have regulations in place to ensure that away-from-home recovery costs will be borne by industry instead of municipalities.

Prince Edward Island

In May 2008, the new deposit return program for non-refillables commenced on Prince Edward Island. Just prior to the implementation of this program, the Province repealed the law which prohibited non-refillable soft drinks to be sold on the Island. Shipments of refillables by Coke or Pepsi ended in the fall of 2008.

Northwest Territories

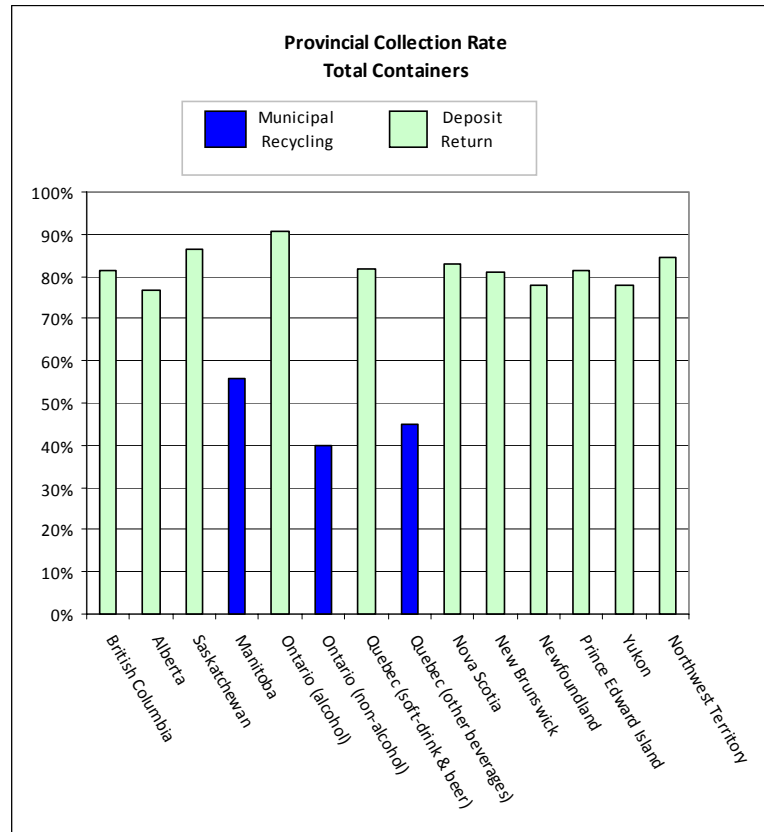
Starting February 15, 2010 the program was expanded to include all milk and liquid milk products, including milk jugs, milk and milk substitute cartons, yogurt drink bottles, condensed or evaporated milk cans, boxed milk substitutes and creamer bottles. These containers are accepted at NWT bottle depots. Exclusions include infant formula and any container less than 30ml.

National

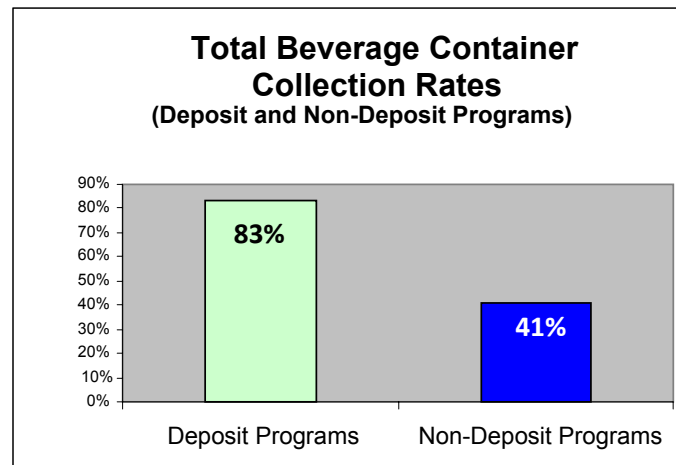
Beginning in 2010, Tetra Pak and Recuperation Mauricie (RCM), along with three other capital funding groups, will be using post-consumer plastic film, gabletop and aseptic packaging in a new process called "thermokinetic mixing" that combines all of these materials into one homogeneous mix that can be used to create flower pots, pallets, plastic lumber and many other products. According to Tetra Pak, this process will use the entire package with no residuals.

Provincial Collection Rates – All Containers

This chart shows the collection rate for each province. Ontario and Quebec are represented with two columns, one for the containers covered under deposit-return legislation and one for those containers that are collected through the municipal system. The Manitoba column includes beer bottles and cans on deposit. What the figures below clearly show is that deposit jurisdictions have higher collection rates than those that rely on municipal recycling.



The following chart represents total collection rates for deposit return and curbside programs for beverage container recovery. The results are similar in relative terms to the recovery rates in the United States, which are about 70% for deposit return programs and about 30% for non-deposit systems.



PART 1 – PROGRAM DETAILS

1.1 Cross-Canada Beverage Program Operators

In Canada, while each provincial program is unique, in general there is a responsible entity (“steward”) as well as a program operator. Operating agencies facilitate operations, reporting, and financing of the collection service. Program operators are either:

- An industry group representing beverage brand owners and first importers; (BC, AB, QC, NB)
- A provincial crown agency; (NS, NF&L, YK, NWT)
- The provincial government directly; (PEI)
- A contracted third party organization; (SK) or
- Municipalities. (MB, ON, QC)

For the most part, the Canadian beer industry collectively manages the recovery of all their refillable containers and in some provinces non-refillable domestic containers as well.

In New Brunswick and Ontario, provincially owned and operated liquor commission/boards (NB Liquor and LCBO respectively) are responsible for administering the program for wine, spirit and imported beer containers. Both agencies contract the program operations out to third party companies.

In British Columbia, Alberta, and New Brunswick, incorporated not-for-profit organizations were set-up to act on behalf of distributors of beverages to collectively administer and operate the program.

In Saskatchewan, SARCAN (a not-for-profit organization) is contracted by the provincial government to undertake the responsibility of fulfilling the collection requirements under the program for all beverage containers, except refillable beer.

In Manitoba, Ontario and more recently Quebec, for the beverage containers not on deposit, municipalities operate the Blue Box. In Ontario and Quebec, brand owners and first importers of those beverage containers pay a portion of the net operating costs. In Manitoba, these costs are funded by consumers.

In Quebec soft drink and beer industries operate their own program for empty carbonated and beer containers.

In Nova Scotia and Newfoundland provincial crown agents manage the program for all non-refillable containers.

In Prince Edward Island, Yukon and Northwest Territories the provincial government oversees and manages the program for all non-refillable beverage containers. Operations are contracted out to the private sector.

The following tables provide an overview of the collection system; responsible stewards; and operating agencies, by province and beverage type.

Table 1.1

**CROSS-CANADA USED BEVERAGE CONTAINER
STEWARD AGENCIES & PROGRAM OPERATORS**
(Updated May 2010)

| PROVINCE | British Columbia | | | Alberta | | Saskatchewan | | Manitoba | |
|-------------------------|--------------------------------|--|---------------------------|---|--|---------------------------------|---|---------------------------------|--------------------------------------|
| Collection system | DEPOT & RETAIL | | CURBSIDE & DEPOT | DEPOT | | DEPOT & RETAIL | DEPOT | RETAIL & Designated Licensees | CURBSIDE |
| Beverage Container Type | Domestic Beer | Non-Alcohol / Wine / Spirits / Imported Beer | Milk | Beer | Non-Alcohol / Wine / Spirits / Milk | Refillable | Non-Alcohol / Wine / Spirits / non-refillable beer / Milk (voluntary) | Beer | Non-Alcohol / Wine / Spirits / Milk |
| RESPONSIBILITY | | | | | | | | | |
| Steward | Brewers Distributors Ltd (DBL) | Encorp Pacific (Canada) | Encorp Pacific (Canada) | Alberta Beer Container Corporation (ABCC) | Alberta Beverage Container Recycling Corporation (ABCRC) | Brewers Distributors Ltd. (DBL) | – | Brewers Distributors Ltd. (DBL) | Multi-Materials Stewardship Manitoba |
| Program Operator | Brewers Distributors Ltd (DBL) | Encorp Pacific (Canada) | Municipalities and Depots | Brewers Distributors Ltd.(DBL) | Alberta Beverage Container Recycling Corporation (ABCRC) | Brewers Distributors Ltd. (DBL) | SARCAN | Brewers Distributors Ltd. (DBL) | Municipalities |

Notes:

Where municipalities are responsible for container collection, only residentially generated material is available to be collected. Away from home consumption and consumption in the commercial sector rely on voluntary recycling efforts by commercial generators and managers of public space waste generation.

CROSS-CANADA USED BEVERAGE CONTAINER STEWARD AGENCIES & PROGRAM OPERATORS

(Updated May 2010)

| PROVINCE | Ontario | | | Quebec | | | Nova Scotia | | |
|-------------------------|----------------------|--|---------------------|----------------------------------|---------------------------------------|---|-----------------|--|------------------------|
| Collection system | RETAIL | | CURBSIDE | RETAIL | | CURBSIDE | DEPOT | DEPOT | CURBSIDE |
| Beverage Container Type | Beer | Wine / Spirits | Non-Alcohol / Milk | Beer | Carbonated Beverages | New-Age / Water / Juice / Wine / Spirits / Milk | Refillable Beer | Non-Alcohol / Wine / Spirits / non-refillable beer | Milk |
| RESPONSIBILITY | | | | | | | | | |
| Steward | The Beer Store (TBS) | Liquor Control Board of Ontario (LCBO) | Stewardship Ontario | Quebec Brewers Association (QBA) | Boissons Gazeuses Environnement (BGE) | Eco-Entreprises Quebec (EEQ) | Beer Industry | Resource Recovery Fund Board (RRFB) | Atlantic Dairy Council |
| Program Operator | The Beer Store (TBS) | The Beer Store (TBS) | Municipalities | Beer Industry | Beverage Industry | Municipalities | Beer Industry | Resource Recovery Fund Board (RRFB) | Municipalities |

Note:

- Where municipalities are responsible for container collection, only residentially generated material is available to be collected. Away from home consumption and consumption in the commercial sector rely on voluntary recycling efforts by commercial generators and managers of public space waste generation.

**CROSS-CANADA USED BEVERAGE CONTAINER
COLLECTION MANAGING AGENTS**

(Updated May 2010)

| PROVINCE | New Brunswick | | | Newfoundland | | Prince Edward Island | | | Yukon | | Northwest Territories | |
|-------------------------|-----------------|--------------------------------------|-----------------|-----------------|--|----------------------|--|--|---------------------------------|--|---------------------------------|---|
| Collection system | DEPOT | | | RETAIL* & DEPOT | DEPOT | DEPOT | | CURBSIDE | DEPOT | | DEPOT | |
| Beverage Container Type | Refillable Beer | Wine / Spirits / non-refillable beer | Non-Alcohol | Refillable Beer | Non-Alcohol / Wine / Spirits / non-refillable beer | Refillable Beer | Non-alcohol, Wine, Spirits & non-refillable beer | Milk | Refillable Beer | Non-alcohol / Wine / Spirits / non-refillable beer | Refillable Beer | Non-alcohol / Wine / Spirits / non-refillable beer / Milk |
| | | | | | | | | | | | | |
| Responsibility | Beer Industry | NB Liquor | Encorp Atlantic | Beer Industry | Multi-Materials Stewardship Board (MMSB) | Beer Industry | Department of Environment Energy & Forestry | | Beer Industry | Environment Yukon | Beer Industry | Government Northwest Territories (GNWT) |
| Program Operator | Beer Industry | Rayan Industries | Encorp Atlantic | Beer Industry | Multi-Materials Stewardship Board (MMSB) | Beer Industry | Department of Environment Energy & Forestry | Island Waste Management Corporation (IWMC) | Brewers Distributors Ltd. (DBL) | Environment Yukon | Brewers Distributors Ltd. (DBL) | Government Northwest Territories (GNWT) |

* In Newfoundland and Labrador, refillable beer bottles can be taken back to breweries, convenience stores and gas stations where refillable beer is sold. Provincial liquor stores do not accept back any containers for deposit. Green Depots will also accept refillable beer containers, but will refund only half the deposit and use the other half as their own handling fee.

- **1.2 Away From Home Collection**

Away-from-Home Recycling

When curbside programs were conceived in the late 1980s, the marketplace for packaging was very different both in terms of packaging material used; and the places they were being discarded. The last decade has seen the dramatic increase in the amounts and types of scrap beverage containers, as well as the number of places these containers are discarded. Streetscapes, parks, shopping malls, and gas stations to name a few, are some examples that make up the myriad of locations where containers are discarded, known as “away-from-home”.



For jurisdictions that do not have deposit return, establishing a comprehensive recovery and recycling system for both residential (single family and multi-dwelling); and away-from-home locations is requisite to achieve higher levels of performance.

The table below highlights some of the many locations that encompass away-from-home.

Away-From-Home Locations

| | |
|--------------------------|---|
| Public spaces | Parks; streetscapes; transit stops; etc. |
| ICI recycling | Bars; restaurants; hotels; shopping malls; convenience stores; offices; gas stations; other workplaces; and some multi-residential (with private waste service) |
| Government | Municipal and provincial government buildings; arenas; libraries; public daycares; community centres; etc. |
| Educational Institutions | Colleges; universities; elementary and secondary schools; etc. |
| Special events | Outdoor music festivals, sporting events; concerts; parades; fairs; etc. |

How much is generated away-from-home?

The question of how many beverage containers are discarded away-from-home is critical to assess recovery rates and design recovery programs. There is little comprehensive data on the subject, but several estimates are currently being used for analysis. The following chart provides some examples of away-from-home percentage share of the total.

Away-from-Home Market Share Estimates

| Source | Share Estimate | Methodology |
|---|--|--|
| <i>Understanding Beverage Container Recycling – A Value Chain Assessment prepared for the Multi-Stakeholder Recovery Project, Businesses and Environmentalists Allied for Recycling (BEAR) Report, RW Beck, Franklin Associates, Telus Institute, Boisson & Associates, Sound Resource Management, 2002</i> | By Container type: 63% for PET bottles; 13% for aluminum cans; 34% for glass bottles | Figures for PET and aluminum are based on carbonated soft drink point of sale data from Container Consulting, Inc. (assumed to be indicative of alcoholic and non-carbonated beverages). Sales at vending machines, venues and convenience stores are assumed to be consumed away from home, while sales at food stores are assumed to be consumed at home. Figures for glass are RW Beck estimates based on an understanding of the types of beverages packaged in glass. |
| American Beverage Association | By total: 30%-34% | Methodology is not publically available. |
| <i>Recyc-Quebec - Mise en Marche et Recuperation des Contenants de Boissons au Quebec, January 2008</i> | By Beverage type : Milk : 5% Soft drink : 17% Juices : 22% Wine/Spirits : 22% Water : 50% | Based on BEAR report methodology. See above. |
| <i>Australian Beverage Packaging Consumption, Recovery and Recycling Quantification Study, Packaging Stewardship Forum of the Australian Food and Grocery Council, September 2008.</i> | By Container material : Glass : 25% Aluminum : 25% Plastic 45% | Based on Sales. Containers purchased at grocery stores considered to be consumed "At Home". At Home sales are then subtracted from total sales and the remainder is considered consumed "Away from home". |
| <i>Independent Review of Container Deposit Legislation in New South Wales, Institute for Sustainable Futures, University of Technology, Sydney, 2001</i> | By Container material : Glass : 55% Aluminum : 75% PET : 30% | Based on waste audits conducted in 116 Australian "Government Areas". Household curbside and garbage streams were analysed to determine the share of beverage containers consumed at home. The "At Home" share was then subtracted from the overall share to determine the "Away from Home" share. |

In central Canada where beverage container recovery relies predominately on municipal curbside recycling, overall recovery rates are substantially lower than in deposit return jurisdictions. In Canada the amalgamated recovery rate for all beverage containers in deposit return programs is 83% compared with an estimated 41% in non-deposit systems.

Proportionally, similar estimates come out of the United States, where about 70% of deposit - bearing containers are recovered, versus about 30% from non-deposit systems¹.

In an effort to address this shortfall, through new stewardship laws, regulators are beginning to mandate targets specific to beverage containers. In Manitoba for example, the new packaging stewardship legislation provides a 75% mandated target for beverage containers. Quebec's recently announced policy also suggests a repeal of the existing deposit return system for soft-drinks if the industry can prove that they can achieve 70% through an alternate approach. Ontario too, is poised to mandate material, or product-specific container targets.

In Quebec, industry has formed a committee, "Table for Out-of-Home Recycling" and provided over \$6M for a four-year objective to optimize the out-of-home recovery of recyclable materials.

Manitoba's Canadian Beverage Container Recycling Association (CBCRA), made-up of the grocery sector and beverage companies is a new not-for-profit corporation based in Manitoba. CBCRA is focused on implementing and financing an away-from-home recovery program which will help achieve the mandated 75% target.

The program will be financed through a 2-cent Container Recycling Fee (CRF) collected by CBCRA from most beverage distributors. Funding will finance beverage recycling in both the municipal curbside system and away-from-home sector. In most cases, the fee is passed through to consumers.

Ontario's new Waste Diversion Act is expected to include provisions which mandate full recovery and financial (100%) responsibility to industry for packaging from both residential and away-from-home locations. Recent results from a series of pilot studies in Sarnia, Ontario suggests that dedicated recycling bins along with effective signage can result in higher recovery rates for beverage containers. More specifically, the Sarnia results show that at locations where bins were placed and monitored, in all cases, the recovery rates were at least 73%. These pilot locations included: convenience store gas bars, parks, and arenas.

CM Consulting will monitor these programs closely and report on their progress in the fifth edition of this report. Also of interest is the amount of money these recovery programs cost in comparison to the alternative deposit return program. Analyzing the costs of both programs with similar performance levels will be a welcome comparison – one that has never been done well in the past due to insufficient data and un-comparable performance levels.

¹Waste & Opportunity, US Beverage Container Recycling Scorecard and Report, 2008. As You Sow
<http://www.asyousow.org/publications/2008/WasteAndOpportunity2008.pdf>

Calculating Collection Rates for Manitoba, Ontario, and Quebec

The **Manitoba** MPSC (Manitoba Product Stewardship Corporation) reports total sales (in units and weight) and residential recovery in tonnes. Away-from-home recovered is not available. For the purpose of this report, calculating recovery rates for aluminum and PET beverage containers for both residential and away-from-home required **three assumptions**:

- Assumptions for Manitoba:
 1. 97% of aluminum and 85% of PET bales sent for recycling are beverage containers. Source: waste audits from Stewardship Ontario – London, Essex-Windsor, Toronto, Durham, Ottawa; and Sudbury for 2005.
 2. The away-from-home portion of aluminum cans is about 20% and 50% for PET. Source: Based on industry reported data; past reports which attempt to quantify the ratios; and discussions with industry..
 3. Assumed an away-from-home collection rate of 40% for aluminum and 30% for PET bottles. These are probably high estimates for recycling away-from-home, especially given the current low value of scrap. In the case of aluminum however, at about 2-cents per can in scrap value alone, it is likely that there are meaningful recovery efforts for cans which are not being reported. Source: Based on conversations with waste management companies servicing the private sector.
- For all other categories of beverage containers, like glass; gabletop; steel; HDPE; other plastics and Tetra Pak, data from MPSC sales from 2008-2009 were applied to the recovery rates developed by Multi Materials Stewardship Manitoba (MMSM).

Ontario provides estimates for residential recovery by material type, whether beverage or non-beverage. For the purposes of this report, calculating total recovery rates for aluminum and PET beverage containers required **three assumptions**:

- Assumptions for Ontario:
 1. 97% of aluminum and 85% of PET reported sales and recovered bales sent for recycling are beverage containers. Source: waste audits from Stewardship Ontario – London, Essex-Windsor, Toronto, Durham, Ottawa; and Sudbury for 2005.
 2. The away-from-home portion of aluminum cans is about 20% and 50% for PET. Source: Based on industry reported data; past reports which attempt to quantify the ratios; and discussions with industry.
 3. Assumed an away-from-home collection rate of 40% for aluminum and 30% for PET bottles. These are probably high estimates for recycling away-from-home, especially given the current low value of scrap. In the case of aluminum however, at about 2-cents per can in scrap value alone, it is likely that there are meaningful recovery efforts for cans which are not being reported.

Source: Based on conversations with waste management companies servicing the private sector. (2009)

- The rate for gabletop/Tetra Pak and steel is pulled directly from the Stewardship Ontario (2008) data and represents residential generation only. IC&I and away-from-home generation data is not available for this analysis.
- Recovery rates for non-alcohol glass beverage containers are also not currently available in Ontario. In addition, IC&I and away-from-home sales data for the wide array of beverage types served in glass bottles are not available.
- For the purpose of this analysis, based on the sales split (liquor glass versus non-liquor glass) reported by Manitoba's MPSC for 2008, 25% of beverage container glass by unit is non-alcohol, and 75% is made-up of wine, spirits, and imported beer glass units. Using unit sales data from the Ontario Deposit Return Program report for 2008, an estimate for non-alcohol glass unit sales was derived and applied to the reported residential recovery rate of 69%. Stewardship Ontario reports 86% residential recovery rate, which does not account for 20% loss of glass during the beneficiation process². Applying this loss brings the Stewardship Ontario rate to 69%. Note, this will still provide a relatively high estimate for recovery of non-alcohol glass containers, as it disregards losses that occur away-from-home. In addition, this rate does not reflect the impacts associated with lower quality glass collected in the curbside system.

Quebec, published recovery rates in January 2008 for all non-deposit beverage containers collected in the residential sector. Source: *Mise en Marche et Recuperation des Contenants de Boisson au Quebec*, Recyc-Quebec, Jan 2008.

- With the sales data provided in the Quebec report (table 5, page 15) we applied a sales increase across all beverage types of 7.7%, based on the sales increase experienced with all soft-drink and beer containers in Quebec from 2005 to 2008.
- Then, the away-from-home market shares provided in the report were applied by material and beverage type.
- A 30% recovery rate was assumed for all away-from-home PET beverages. This was added to at-home recovery rates.

² This is the overall loss rate with beneficiation in Ontario for curbside collected glass. Source: Nexcycle, June 2010

Sensitivity of Assumptions

To ensure that the recovery rates provided are reasonably accurate, it was necessary to run sensitivity analysis on the two primary assumptions used:

- 1) The portion of away-from-home sales; and
- 2) The recovery rate away-from-home.

As noted earlier, this report uses:

ONTARIO & MANITOBA CANS: Portion of away-from-home sales: 20%; and Recovery rate away-from-home: 40%

ONTARIO, MANITOBA & QUEBEC PET: Portion of away-from-home sales: 50%; and Recovery rate away-from-home: 30%

The sensitivity analysis shows that combining both assumptions only moderately affects the overall recovery rate. This sensitivity analysis was applied the 3rd edition of *Who Pays What*. (see *Who Pays What 2006-2007* - Appendix B)

1.3 Collection Rates

Refillable Beer Bottles

Monitoring the recovery rates for refillable beer bottles is done by provincial operating agencies and the Brewers Association of Canada.

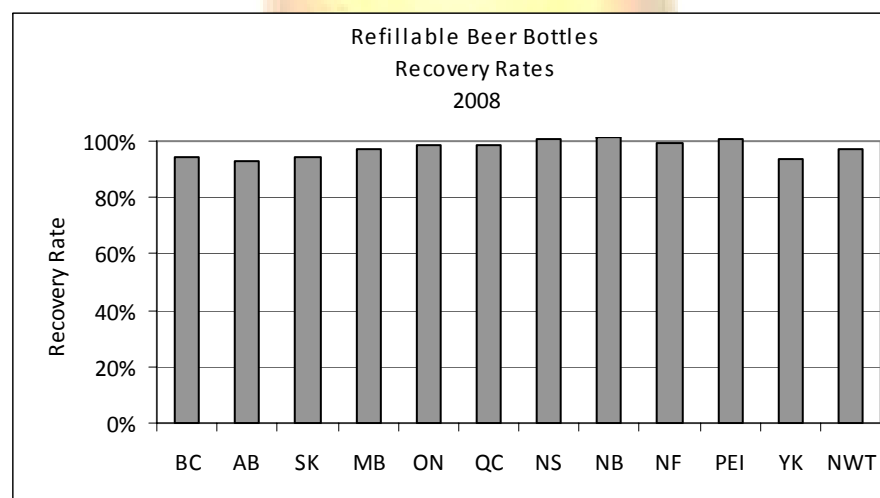
Other forms of refillable bottles exist and are entirely managed by industry. These include: Large refillable water bottles and several small brands of alcohol and non-alcohol like milk and soft drinks. These recovery rates are not reported or available to the public.

The table below summarizes the recovery rates for refillable beer bottles collected through Brewer-run provincial systems. The data presented is for operating year 2008. The Canadian Brewers' Industry Standard Bottle (ISB) is a highly efficient and environmentally preferable method of packaging beer. Consistently high recovery rates, combined with multiple uses (usually about 15 trips) make the refillable beer bottle Canada's beverage packaging success story.

Table 1.3.a

| | British Columbia | Alberta | Saskatchewan | Manitoba | Ontario | Quebec | Nova Scotia | New Brunswick | Newfoundland | Prince Edward Island | Yukon | Northwest Territory |
|-------------------------|------------------|---------|--------------|----------|---------|--------|-------------|---------------|--------------|----------------------|-------|---------------------|
| Refillable Beer Bottles | 94% | 93% | 94% | 97% | 99% | 98% | 101% | 102% | 99% | 101% | 94% | 97% |

Figure 1.3.a



Non-Refillable Containers



Monitoring the collection or recycling rate for beverage containers in Canada is done annually on a province by province basis. In all deposit return jurisdictions recovery rates are based on units returned divided by the units sold in that year. Measuring beverage container collection in jurisdictions that collect multi-materials mixed together is complex, because there is limited generation or recovery data from these businesses. Rarely are waste composition studies done in the commercial and private sector. Estimating a recovery rate outside of the residential system, for public spaces, venues,; and other point of consumption, requires assuming a recovery rate (in this case 40% for aluminum and 30% for PET) for container collection from “away-from-home” locations.

The table below summarizes the recovery rates for the various categories of non-refillable containers collected through the provincial systems. The data presented is for operating the year 2008-2009¹. It is worth noting that for the period of November 2008 to October 2009, after only 11 months of increased deposit refund values in the Province of Alberta (5 to 10-cents, and 20 to 25-cents), the Province reported a total increase to 81%. This will be shown in later versions of this report.

Table 1.3b

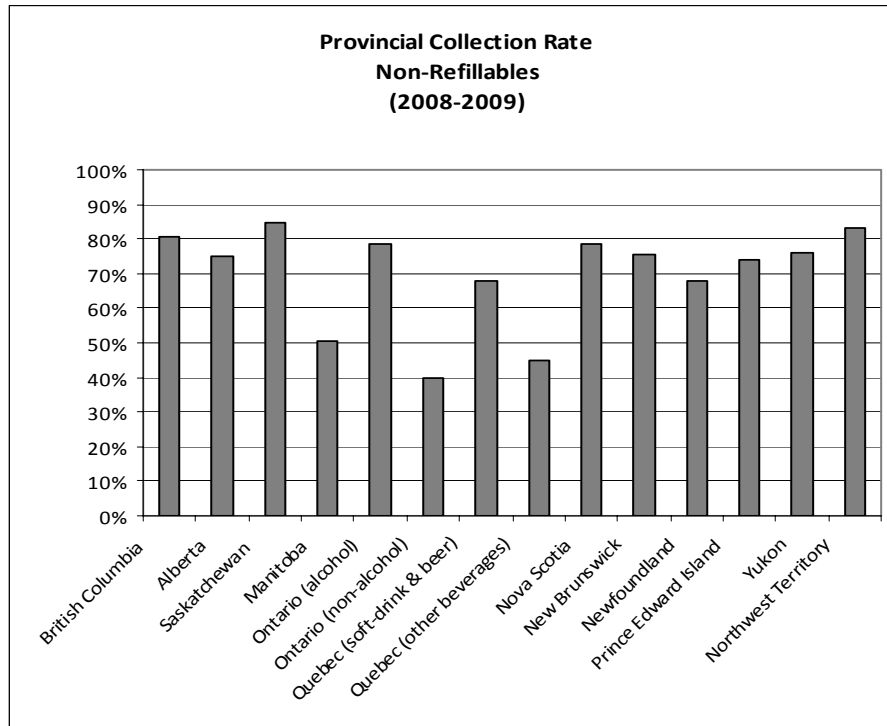
Beverage Container Collection Rates

| | British Columbia | Alberta | Saskatchewan | Manitoba | Ontario (alcohol) | Ontario (non- alcohol) | Quebec (soft- drink & beer) | Quebec (other beverages) | Nova Scotia | New Brunswick | Newfound- land | Prince Edward Island | Yukon | Northwest Territory |
|-----------------------------------|---------------------|------------|--------------|------------|----------------------|------------------------------|--------------------------------------|--------------------------------|----------------|------------------|-------------------|----------------------------|------------|------------------------|
| Aluminum Cans | 86% | 80% | 91% | 57% | 79% | 40% | 66% | - | 84% | 79% | 69% | 73% | 81% | 83% |
| Non-Refillable Glass | 87% | 86% | 89% | 35% | 81% | 69% | 75% | 57% | 84% | 77% | 70% | 82% | 87% | - |
| PET Bottles | 76% | 70% | 82% | 49% | 40% | 44% | 70% | 45% | 82% | 81% | 68% | 84% | 96% | - |
| Other Plastics | 76% | 53% | 82% | 18% | - | 14% | - | - | 27% | 78% | 68% | - | 64% | 80% |
| Bi-Metal | 60% | 65% | 91% | 48% | - | 62% | - | 24% | 102% | - | 79% | - | 53% | 36% |
| Gable/Tetra Pak | 55% | 55% | 55% | 18% | 31% | 18% | - | 47% | 63% | - | 57% | 44% | 50% | 48% |
| Other | 35% | - | - | 18% | - | - | - | - | - | 47% | - | 44% | - | 13% |
| TOTAL Non- Refillables | 80% | 75% | 85% | 50% | 78% | 40% | 68% | 45% | 78% | 75% | 68% | 74% | 76% | 83% |
| Refillable Beer | 94% | 95% | 94% | 97% | 99% | - | 98% | - | 101% | 102% | 99% | 101% | 94% | 97% |
| TOTAL CONTAINERS | 81% | 77% | 87% | 56% | 91% | 40% | 82% | 45% | 83% | 81% | 78% | 81% | 78% | 85% |

¹ Operating years vary from January 1 – December 31, 2008; April 1, 2008 – March 31, 2009; May 1, 2008 – April 30, 2009.

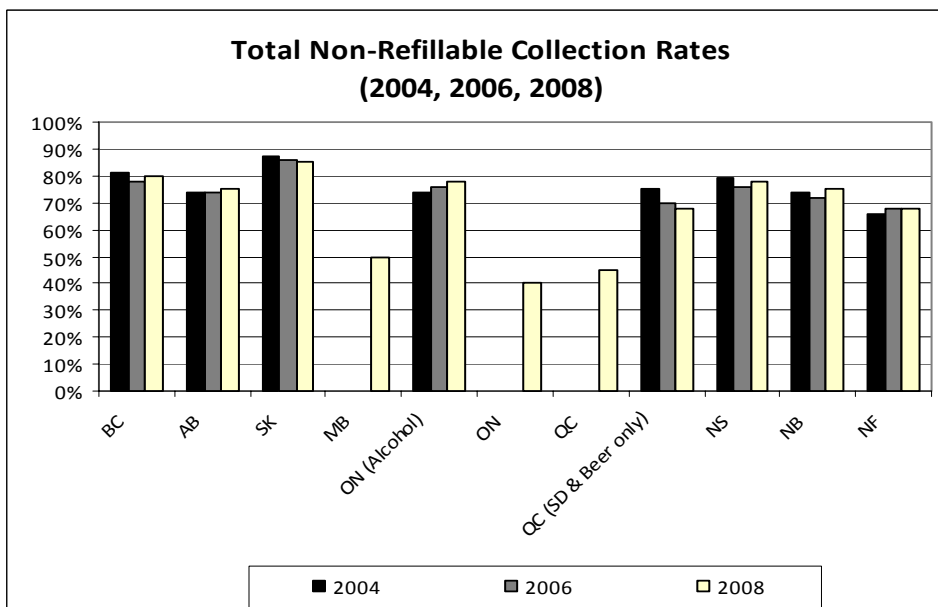
The following two tables show the collection rates for 2008 for non-refillables as a category, and those same rates for 2004, 2006, and 2008. The 2008 snapshot shows how deposit jurisdictions have higher rates of return than non-deposit jurisdictions.

Figure 1.3b



Of note, while the rest of the country is experiencing declining or static collection rates the province of Ontario has shown an increase to nearly 80% because alcohol glass recovered under the ODRP.

Figure 1.3c



The following charts provide material summaries of collection rates for each of the non-refillable beverage container categories across Canada. In some cases a collection rate will not appear for the province because the data is either not available or not applicable.

Aluminum Cans

The following figure shows the recovery rate for aluminum cans by province in 2008. Significantly higher collection rates are found in jurisdictions with deposit return programs in place. Non-alcohol cans from Ontario and Manitoba show the lowest rates in the country. Quebec has a 5 cent deposit on aluminum beer cans, half the value of the deposit for the other deposit jurisdictions. This may explain why Quebec's recovery rate is lower than other deposit jurisdictions.

Figure 1.3d

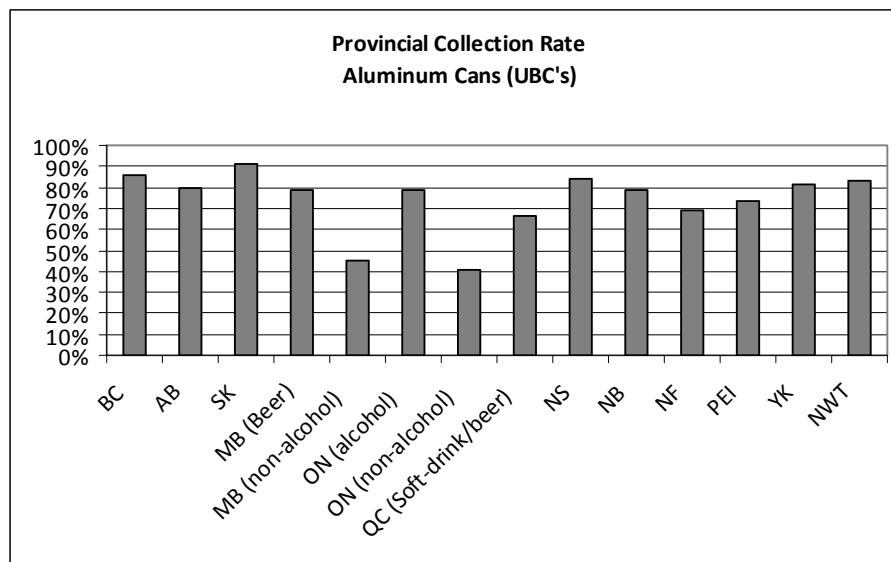
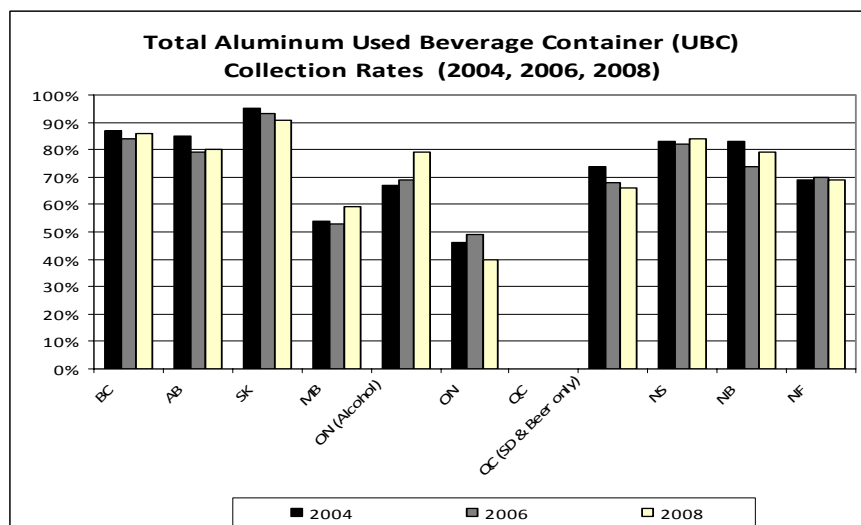


Figure 1.3e provides the same rates for 2004, 2006, and 2008. It shows that nationwide, the recovery rates for aluminum are dropping except in Ontario's where the new ODRP program applied to all alcohol containers has reversed the trend.

Figure 1.3e



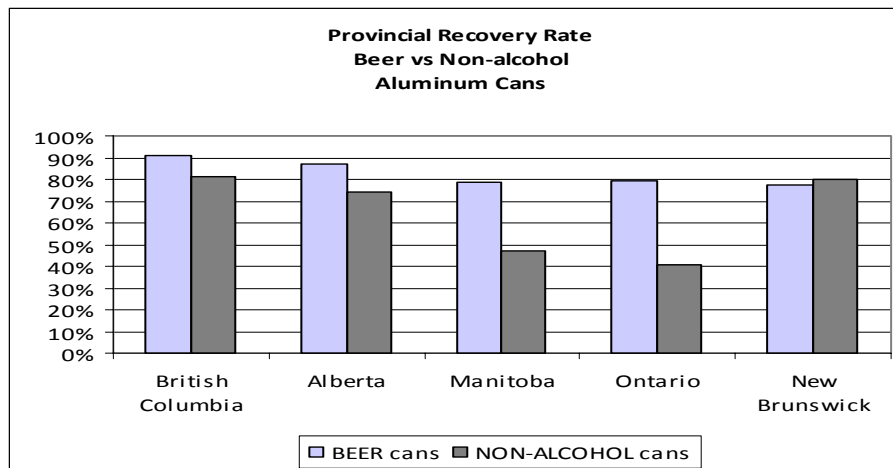
In the provinces of British Columbia, Alberta, Manitoba, New Brunswick and Ontario, beer cans are handled separately from non-alcohol cans. Also, in British Columbia and Alberta, beer cans carry a higher deposit (10-cents), and non-alcohol cans carry a lower deposit (5-cent). In addition, in Manitoba and Ontario, only beer cans carry a 10-cent deposit and non-alcohol cans are recovered through municipal curbside programs.

The following table and figure provide collection rates by can type: beer vs non-alcohol. The rates below are for 2008-2009.

Table 1.3c

| | British Columbia | Alberta | Manitoba | Ontario | New Brunswick |
|---------------------|---------------------|---------|----------|---------|------------------|
| BEER cans | 91% | 87% | 79% | 79% | 78% |
| NON-ALCOHOL cans | 81% | 74% | 47% | 40% | 80% |

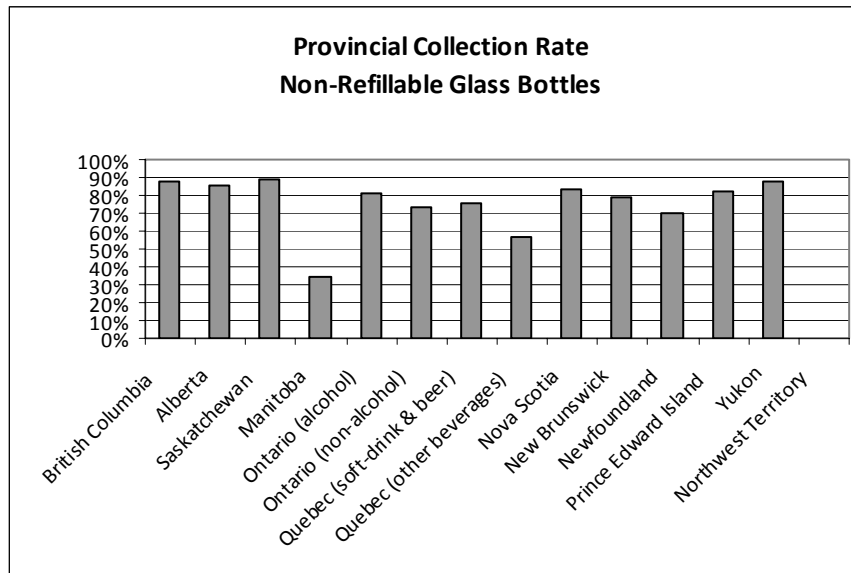
Figure 1.3f



Non-refillable glass

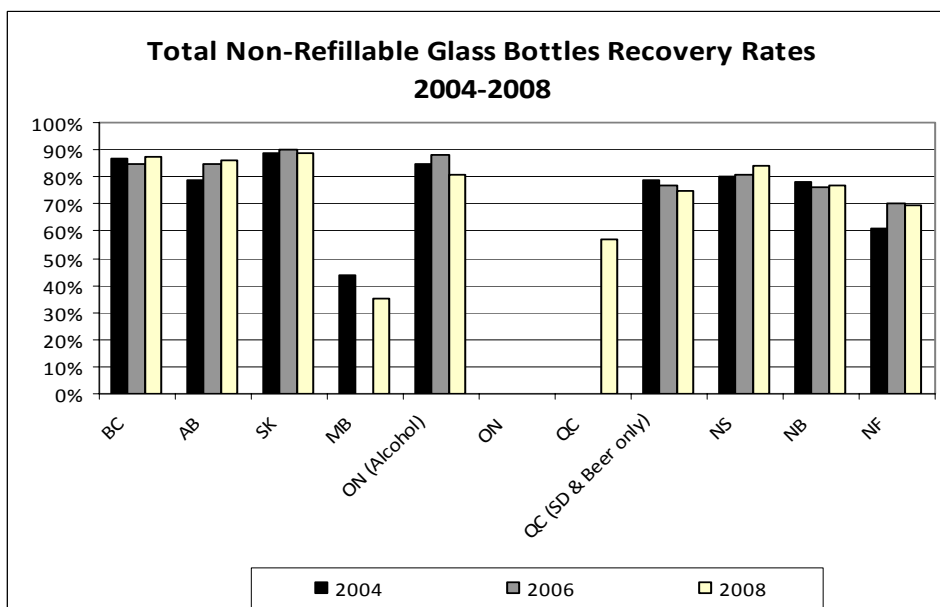
Like other container types, non-refillable glass is returned at the highest rate in the deposit jurisdictions. It should also be noted the collection rates in Ontario, Manitoba and Quebec may be over stated given that they do not account for yield losses due to contamination.

Figure 1.3g



In the following chart, it is shown that most programs have kept fairly consistent recovery rates for non-refillable glass from 2004-2008. In Ontario, the drop from 2006 to 2008 is accounted for by the fact that the 2006 rate included only non-refillable beer glass, which was under deposit. The 2008 rate includes all non-alcohol glass which, while under deposit, does not show quite as high a recovery rate. The rate is however steadily increasing.

Figure 1.3h



PET Bottles

PET bottles show a lower collection rate than aluminum cans and glass bottles. Like the other materials, it is collected at a higher rate in the deposit jurisdictions.

Figure 1.3i

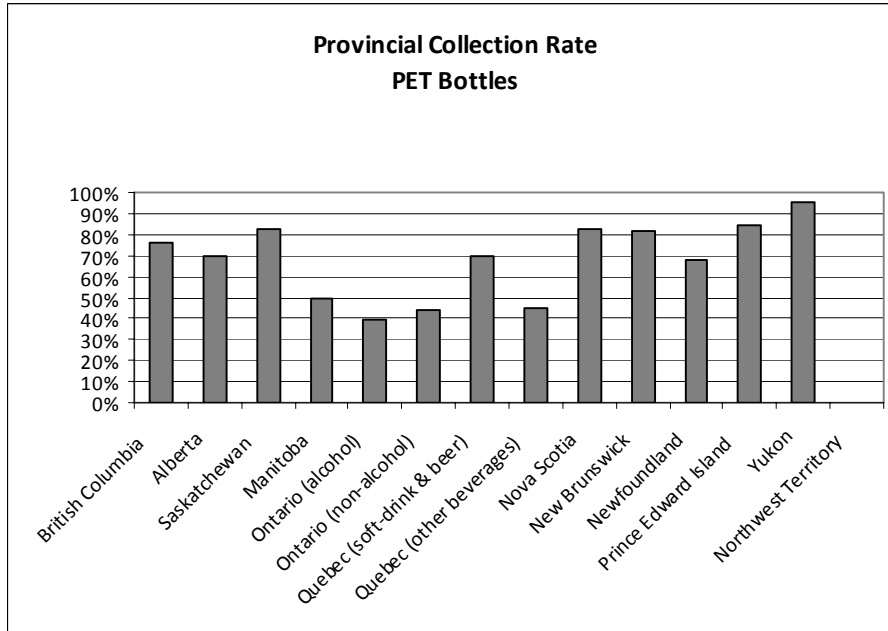
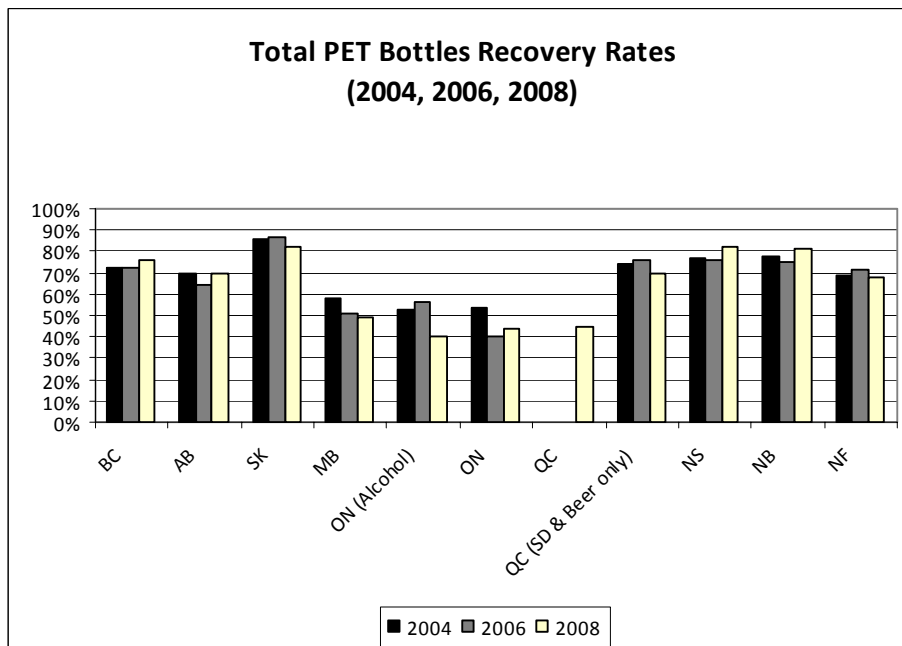
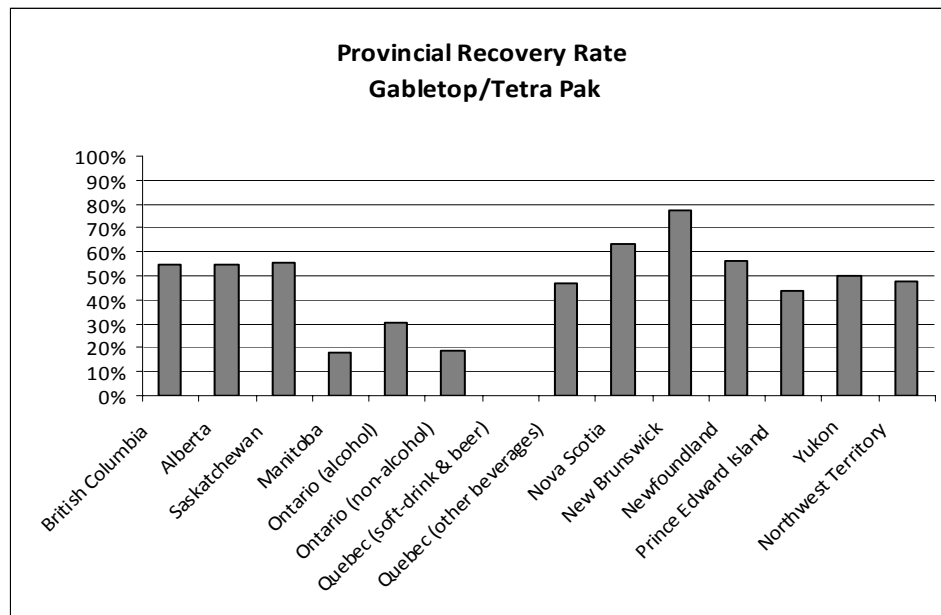


Figure 1.3j



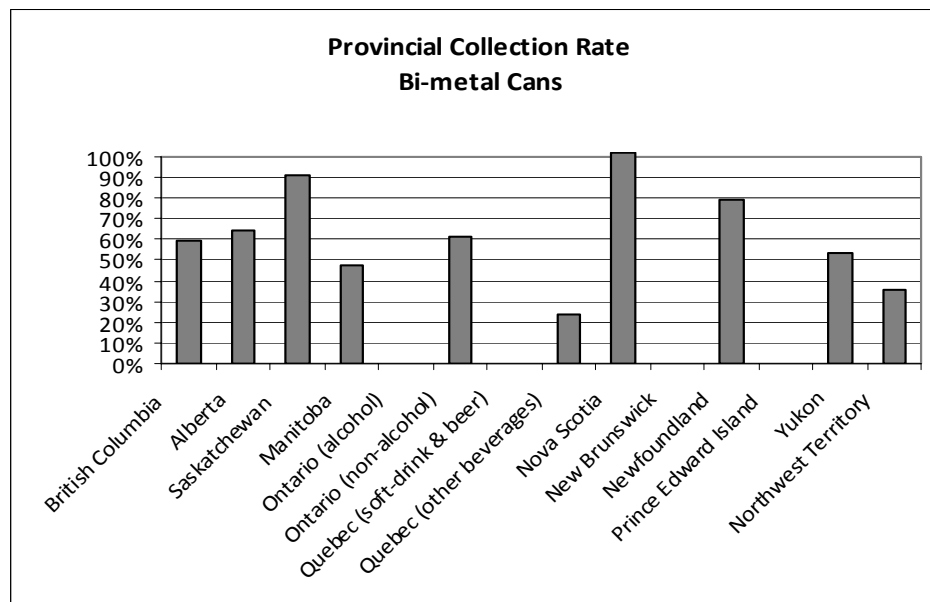
Gabletop/Tetra Pak

Figure 1.3k



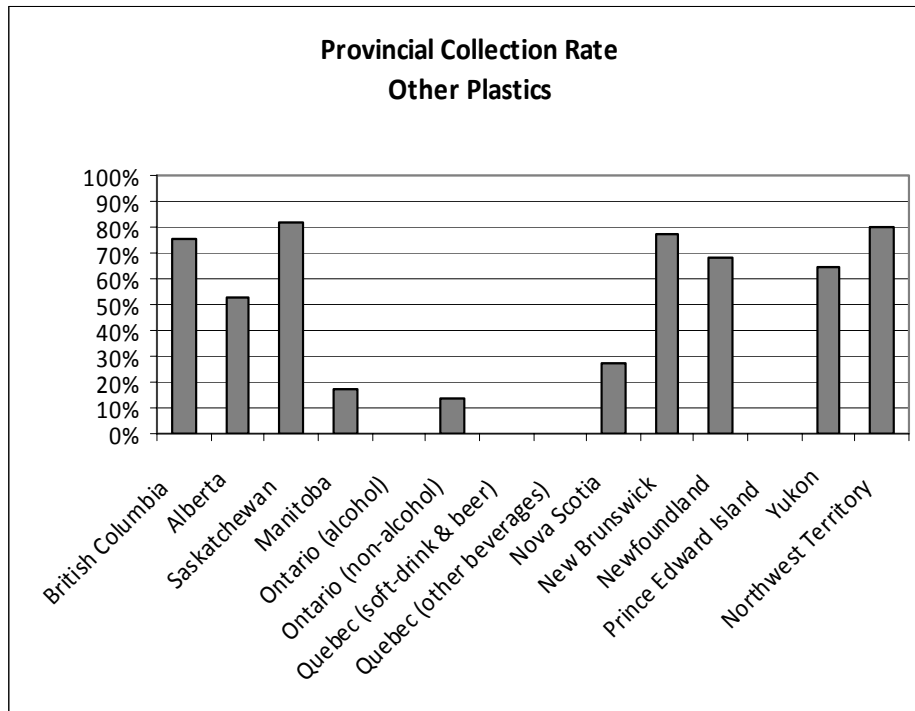
Bi-metal cans

Figure 1.3l



Other Plastics

Figure 1.3m



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Milk Containers

Monitoring the collection rates of milk container packaging varies by province and may be based on waste audit data; actual sales and unit recovery; or it may be an extrapolation of the recovery rate of whole material group (for example “aseptic” packaging, which includes Tetra Pak and Gabletop containers). Where multi-material collection takes place the recovery rate for the entire category of products is the same.



It should be noted that milk jugs made from HDPE make-up a greater share of the marketplace in western Canada. Jugs in Ontario are under a deposit return program through Beckers stores. All associated data is proprietary. There are very few jugs in Quebec and the Atlantic provinces. Overall milk jugs have a much higher recovery rate than cartons. This may be attributable to several factors, including a strong secondary market for HDPE jug material.

In June 2009, Alberta introduced deposits on milk and related milk substitute beverages. The program is showing significant improvement. Since the implementation of deposits, according to Alberta Environment, the rate of recycled cartons grew from 22.5% to 61% and the rate of plastic jugs from 61% to 71%. The Alberta Dairy Council reports that new deposits have not had an impact on sales.

British Columbia’s Milk Container Recycling Program has experienced significant growth by increasing the number of participating depots from 117 in 2007, to 144 in 2008. In addition, while the number of depots has gone up, so to has the amount collected per depot. Specifically, for the first half of 2008 to the first half of 2009, collection per depot increased from 1177 kg per depot to 1451 kg per depot. In total, there was a 43% increase in the weight of plastic jugs collected overall. Due to insufficient data on milk specific packaging recycled, collection rate data is not currently available.

In the Northwest Territories, as of February 15, 2010, The *Beverage Container Regulations* under the *Waste Reduction Act* have been amended to include all containers for milk and milk supplements excluding those with infant formula or milk products in containers less than 30ml. These containers will carry a 10 and 25-cent deposit depending on the size of the container.

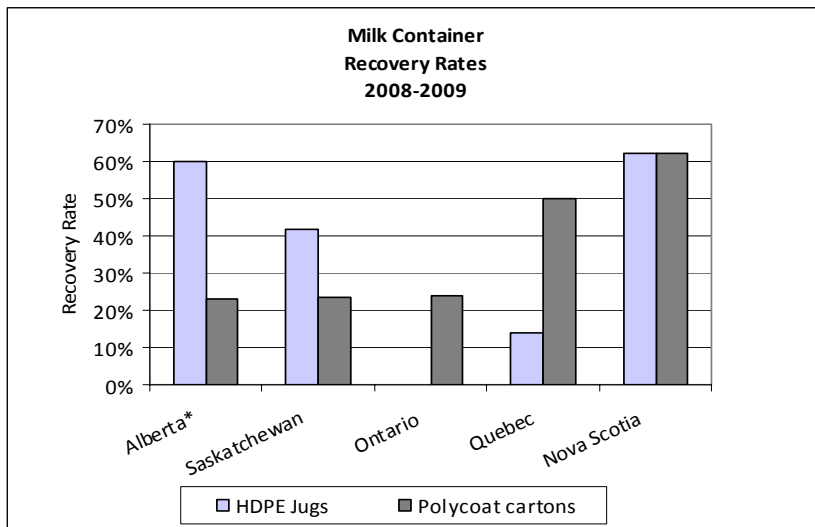
The following table and chart provides an overview of current collection rates in those provinces that monitor milk packaging recycling.

Table 1.3d

| | Alberta* | Saskatchewan | Ontario | Quebec | Nova Scotia |
|------------------|----------|--------------|---------|--------|-------------|
| HDPE Jugs | 60% | 42% | n/a | 14% | 62% |
| Polycoat cartons | 23% | 23% | 24% | 50% | 62% |

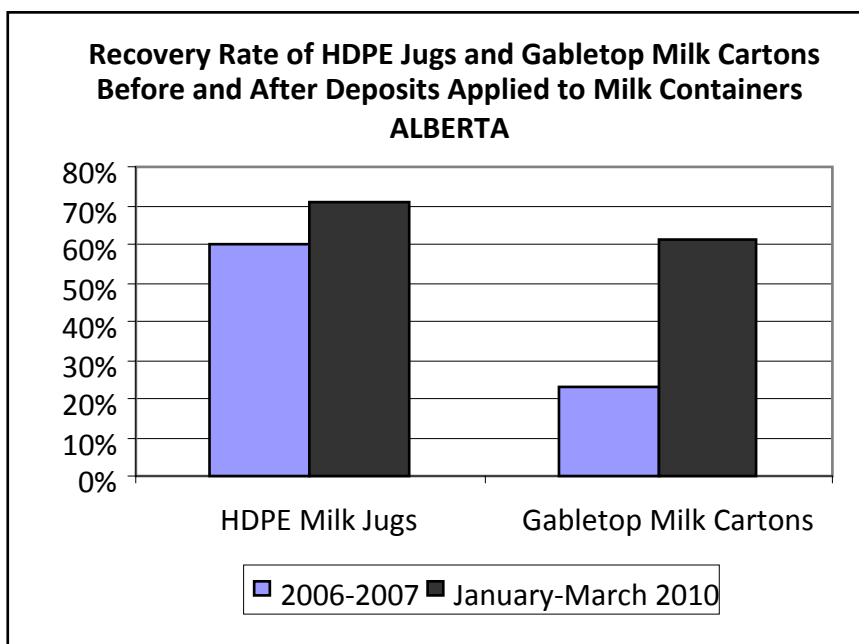
* Milk container recovery rates for 2008-2009 are not available from Alberta; however the Ministry reports that recovery rates in 2006-2007 were 60% for HDPE and 23% for polycoat cartons.

Figure 1.3n



With the introduction of deposits on milk containers in Alberta, both types of milk containers have been collected at a higher rate. The following chart shows the recovery rate for milk containers before the introduction of the deposit and for the first three months of 2010.

Figure 1.3o



1.4 Program Summaries – by Province

British Columbia



Program Scope and Targets

Beverage Container Stewardship Program

The province-wide deposit-refund program began under the *Litter Act* in 1970 for carbonated soft drinks and beer, and expanded to include any ready-to-serve beverage sold in a container that is sealed by its manufacturer excluding milk, milk substitutes, rice milk, soya milk, flavoured milk, infant formulas, meal replacements or dietary supplements.

This regulation was repealed in 2004, and most of its provisions are now in Schedule 1 of the *Recycling Regulation*, which required that existing stewardship agencies submit revised stewardship plans consistent with the regulation by October 2008.

The regulation establishes a minimum goal of 75% recovery rate and requires that redeemed containers be either refilled or recycled.

Milk packaging is collected voluntarily through municipal curbside recycling programs and 144 bottle depots. There are no recovery targets for milk containers.

Supporting Regulatory Framework

The province-wide program began in 1970 with the *Litter Act*, which made British Columbia the first jurisdiction in North America to establish a mandatory deposit-refund system for soft drink and beer containers as a litter control initiative. The province enacted the *Beverage Container Stewardship Program Regulation* (1997), which replaced the outdated *Litter Act*.

The new regulation expanded the deposit-refund system to include all ready-to-serve beverages sold in containers, sealed by their manufacturer with the exception of containers for milk and milk substitutes.

In October of 2004, the *Recycling Regulation* consolidated all B.C. stewardship regulations including the *Beverage Container Stewardship Program* regulation into a single regulation.

Summary of Initiative

The *Beverage Container Recovery Program* was expanded on October 1, 1998 and targets brandowners or first importers (stewards) of non-refillable beverages (excluding milk products), which are sold in the province of British Columbia. Prior to the expansion, only carbonated soft drink containers were regulated under a deposit return program. The expansion added bottled water, juice, new age, and alcohol containers.

With the enactment of the *Recycling Regulation* in 2004, stewards were required to submit stewardship plans, which described the development and operation of the beverage

container program. The plans also describe how the program provides consumers with an efficient and convenient system for collecting and recycling beverage containers.

All beverage containers carry a deposit based on their size.

Currently there are two stewardship agencies in British Columbia representing beverage manufacturers.

Encorp Pacific (Canada) represents brand owners of non-alcohol, wine, spirit, some cider, coolers and beer manufacturers. Encorp return centres include 170 independent depots and thousands of retail outlets. Encorp manages about 71% of recovered beverage containers province-wide.

Brewers Distributors Ltd. (BDL) is the second steward representing brand owners of domestic coolers, beer and cider, and imported cans. Brewers Distributors Ltd. provides for retail returns at a total of 1270 locations including 676 private liquor stores, 197 government run liquor stores, 227 rural agency stores, and 170 independent depots. Brewers Distributors Ltd. manages about 29% of recovered beverage containers province-wide.

Collection Mechanism

Beverage containers are redeemed at depots, retail outlets and Liquor Distribution Branch (LDB) stores. Brewers Distributors Ltd. provides for retail returns at a total of 1270 locations including 676 private liquor stores, 197 government run liquor stores, 227 rural agency stores, and 170 independent depots. 78 percent of British Columbia's population live within two kilometres of a BDL return depot.

Encorp return centres include 170 independent depots and thousands of retail outlets. Encorp is now testing compaction machines in some of its outlets which will see the system gain efficiencies by transporting more materials per truck, resulting in far less fuel used per tonne transported.

Independent transporters collect the containers and take them to about 12 processing sites across the province.

Processors receive bags of mixed containers and prepare them for the appropriate recycling market by sorting, crushing and/or baling the glass, aluminum, plastic and other materials.

In the case of all domestic beer, cider and coolers, the Brewers Distributors Limited collects these containers from LDB stores, licensees, cold beer and wine stores, agency stores and about 28 depots. In general, other bottle depots will also accept empty domestic beer containers, but will discount part of the refund as a handling fee. Empty containers are back-hauled to the various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Milk containers are accepted without a refund at 144 bottle depots as part of a voluntary program financed by the dairy industry and administered through Encorp Pacific. However, the majority of milk jugs are collected through municipal recycling programs.

Program Financing

(Note: All \$ or cents presented in this report are in Canadian currency)

The *Beverage Container Recovery Program* in British Columbia is funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a Container Recycling Fee (CRF) paid at the point of purchase by consumers.

Container Recycling Fees are charged based on the net cost of recovering specific container types, net of unredeemed deposit and material revenue. Fees are re-evaluated every year, and are rounded up to the nearest penny. For example, if the net system cost to recover an aluminum can is \$0.0095, the Container Recycling Fee will be \$0.01 per can.

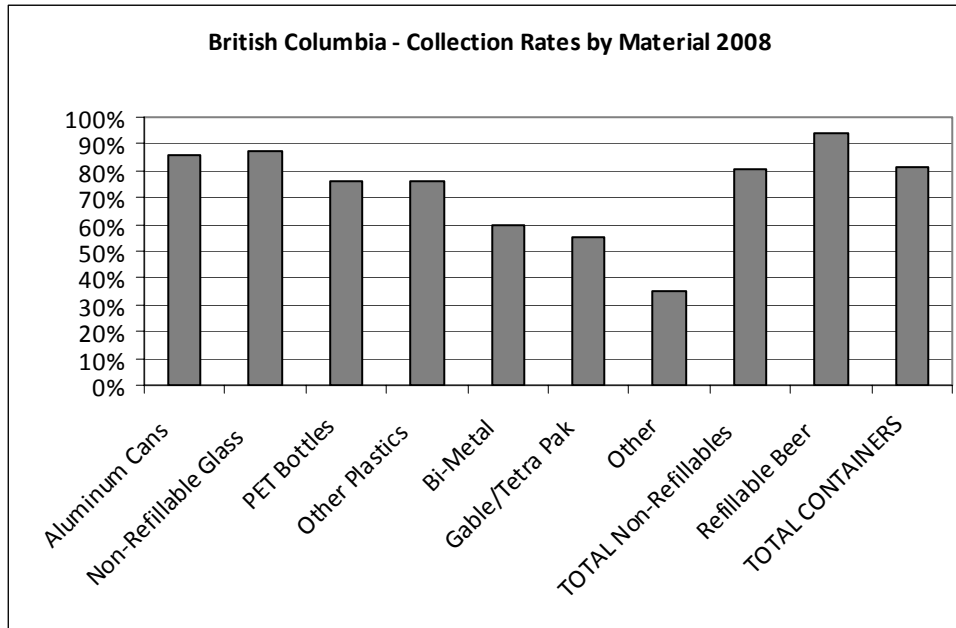
The Container Recycling Fee varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. In 2010, the fee range from no fee to \$0.10 per unit depending on the size and material used for the container. Some containers, like drink pouches, do not carry a fee because their recovery rates are low enough that the unredeemed revenue covers their collection cost, thereby not requiring a CRF.

Since the implementation of the Container Recycling Fee (CRF), the beverage industry (except for the domestic beer industry) bears no direct costs associated with the operation of the *Beverage Container Recycling Program*. These costs have been transferred to the product consumer/user. Individual brewers internalize their stewardship (collection, transporting, refilling and recycling) costs.

Collection Rates

British Columbia's total container recovery rate is 81%. This is fairly consistent with other deposit return jurisdictions in Canada

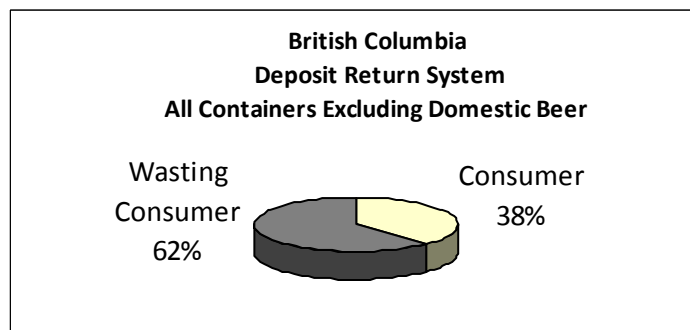
Figure 1.4a



Who Bears the Share

The following chart shows who pays for British Columbia's Deposit Return System which covers all beverage containers excluding domestic beer, as a percentage of total program funding (net of material revenues). The wasting consumer pays for 62% of the program by not redeeming their deposit. 38% of the contribution is from the consumer who pays a non-refundable Container Recycling Fee at the point of purchase.

Figure 1.4b



Alberta



Program Scope and Targets

Alberta Beverage Container Recycling Program

The province-wide program began in 1972 and expanded to include all beverages in 1989, and further expanded to include Tetra Pak and gabletop containers in 1997. On May 1, 2001 the exemption for domestic beer containers was lifted from the *Beverage Container Recycling Regulation*. Domestic beer containers were added to the program on Nov 15, 2001. The inclusion of domestic beer in the regulation did not result in any real changes to the system, except that domestic beer producers would be treated the same as other beverage producers in terms of program compliance; reporting; and legislated aspects like handling fees paid to depots.

On November 1 2008, provincial amendments came into force, increasing deposit levels to 10 and 25 cents. On June 1, 2009, Alberta became the first province or state in North America to add milk and milk products to the deposit schedule.

There are no recovery targets set out in the regulation; however the government has encouraged a target of 85%.

Supporting Regulatory Framework

The program is regulated under the *Environmental Protection and Enhancement Act* and the *Beverage Container Recycling Regulation*. The Regulation expired in October 2007, and was amended with new deposit levels which came into force November 2008.

The Beverage Container Management Board (BCMB) took over regulatory authority for the program in 1997, supported by the *Beverage Container Management Board Administrative By-Law*, the *Beverage Container Management Board Fee By-Law*, and the *Beverage Container Management Board Administrative Compliance By-Law*.

Summary of Initiative

The province requires beverage producers/brand owners to operate a common collection system to recover containers from the bottle depots and retail locations for beer.

The Beverage Container Management Board (BCMB) administers the *Beverage Container Recycling Regulation*.

The Alberta Beverage Container Recycling Corporation (ABCRC) is the operating agent representing producers/brand owners of non-beer beverages sold in Alberta. It is responsible for ensuring that containers are collected, transported, processed and recycled as per the requirements of the regulation.

Alberta Gaming and Liquor Commission (AGLC) represent the producers of alcohol. AGLC uses ABCRC to manage its wine and spirit containers and Alberta Beer Container Corporation (ABCC) to manage its beer containers. ABCC is responsible for ensuring that all beer containers are collected, transported, processed and recycled as per the requirements of the regulation. ABCC subcontracts the management of beer that is in non-refillable containers (all one-way glass and PET beer containers) to ABCRC.

Collection Mechanism

Consumers may return empty containers to privately owned and operated registered “universal” bottle depots (216 province-wide) and collect their refund. There are also 66 “Class D Beer Depots” that accept only beer containers and offer consumers a refund.

Bottle depots collect and sort the containers for the Alberta Beverage Container Recycling Corporation (ABCRC) (representing non-beer beverage distributors) and the Alberta Beer Container Corporation (ABCC) representing brewers.

ABCRC and ABCC pick up and transport containers to two processing facilities in the province where the materials are prepared for recycling end-markets. Refillable beer bottles are sent to brewers.

Program Financing

(Note: All \$ or cents presented in this report are in Canadian currency)

The *Alberta Beverage Container Recycling Program* is funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a Container Recycling Fee (CRF) paid at the point of purchase by consumers.

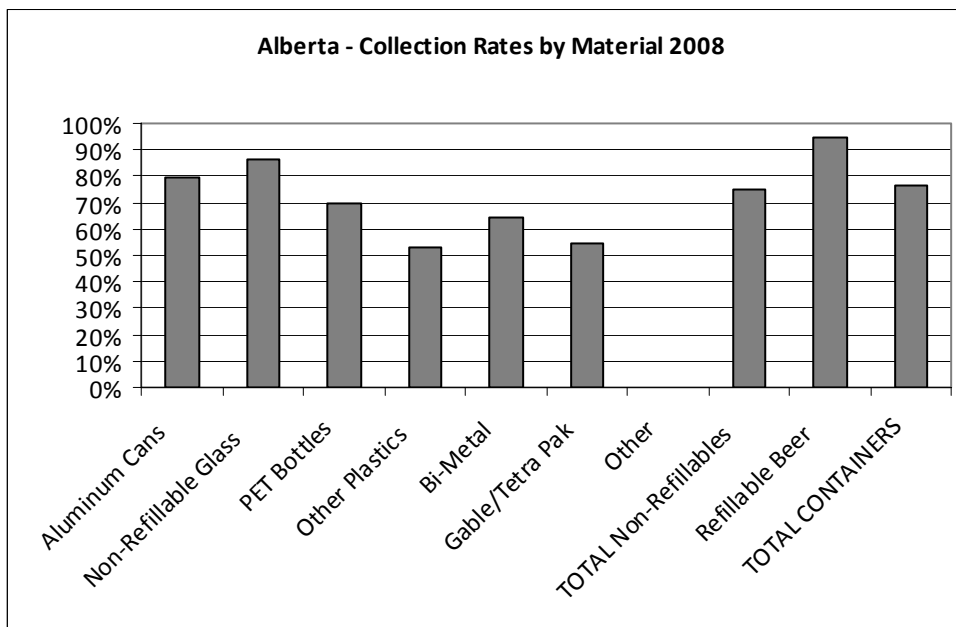
The CRF varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. In 2010, the fees range from zero to \$0.09 per unit depending on the size and material used for the container. Aluminum cans do not carry a fee because high material revenue and unredeemed deposits cover the collection costs. Gabletop, drink boxes, and bag-in-the-box over 1L also do not carry a fee because the unredeemed deposit revenue is high enough to carry the costs of collecting these materials.

Since the implementation of the Container Recycling Fee (CRF), the beverage industry bears no direct costs associated with the operation of the *Beverage Container Recycling Program*. These costs have been transferred to the product consumer/user. Individual domestic brewers internalize their stewardship (collection, transporting, refilling and recycling) costs for their containers.

Collection Rates

Alberta had a total containers recovery rate of 77% for the calendar year of 2008. This is at the low end for deposit return jurisdictions. On November 1, 2008, the Province increased the level of its deposits from 5-cents to 10-cents and 20-cents to 25-cents. After only 11 months, the Province reported a monthly increase in total collection rate of 5 points, from 76% to 81%

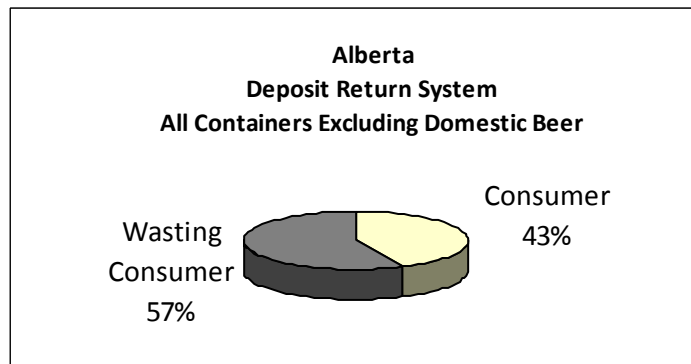
Figure 1.4c



Who Bears the Share

In Alberta, the wasting consumer pays for 57% of the program by not redeeming his container for refund. The remaining 43% contribution is from the consumer who pays a Container Recycling Fee (CRF) at the point of purchase.

Figure 1.4d



Saskatchewan



Program Scope and Targets

Beverage Container Collection and Recycling Program

The province-wide program was established in 1988 and expanded to include Tetra Pak and gabletop containers in 1999. All beverage containers are included under the regulation. This means any liquid that is a ready-to-serve drink but does not include milk, milk substitutes, flavoured milk, infant formulas, meal replacements or dietary supplements.

The provincial targets for containers covered under the milk container program are 75%. There are no specific targets for the beverage container program.

Unified Dairy Recycling System

The Unified Dairy Recycling System (UDRS) is a program whereby the dairy industry in Saskatchewan contracts with SARCAN Recycling to provide a voluntary collection and recycling system for plastic milk jugs and paper milk cartons via beverage container depots. The original province-wide program was launched in 1999 and upgraded to the current program in Feb 2001. There are no official targets set out in the program.

Supporting Regulatory Framework

The program is legislated under the *Litter Control Act*, 1978 and the *Designated Container Regulations*, 1990. A 1999 Amendment to the *Litter Act* added Tetra Pak and gabletop containers.

The program is legislated under the Litter Control section (Amended in 2009) of the *Environmental Management and Protection Act* of 2002

Summary of Initiative

The Saskatchewan Association of Rehabilitation Centres' Recycling Division, known as SARCAN, administers the program. SARCAN operates under contract to Saskatchewan Environment, the provincial environment ministry

This Ministry designates containers that can be collected for recycling and establishes the value of the deposit and Environmental Handling Charge (EHC) that consumers pay when purchasing a beverage.

The retailer passes the collected revenue through to the distributor and then to the Department of Finance.

When returning the empty non-refillable container to one of SARCAN's 71 depots, the consumer is refunded the full deposit.

The Environmental Handling Charge is not refunded to the consumer, but used by the provincial government to offset SARCAN's contract cost and contribute to general revenues. The EHC is not the same as a depot handling fee. In fact, in Saskatchewan there is no official handling fee because SARCAN and its depots are paid an annual grant (\$14.9 million in 2009) which SARCAN uses to fund the operating costs of its depots along with the transportation, processing and marketing of the materials.

Collection Mechanism

Containers are returned to 71 province-wide depots in the 62 communities. Depots sort and flatten the containers, which are picked up by SARCAN trucks, taken to SARCAN processing facilities and sent to recycling end-markets. SARCAN depots will also accept rinsed milk containers on a voluntary basis but offer no deposit for them.

Refillable beer containers are returned to Saskatchewan Liquor and Gaming Commission (SLGC) stores, hotels, and four depots. All SARCAN depots and all SLGC stores keep a 6-cent portion of the 10-cent refund as a handling fee. Brewers Distributors Ltd. collects these empty beer containers, back-hauls them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All \$ or cents presented in this report are in Canadian currency)

The program is funded through revenue generated from the sale of empty beverage containers and a provincial grant awarded to SARCAN. SARCAN is also paid a handling fee for all milk containers collected through its depots or through municipalities on a per tonne basis.

In 2008-2009 the contract was worth \$14.9M. The provincial government raises revenue through the Environmental Handling Charge, which ranges from \$0.03 to \$0.07 per unit sold. Excess funds generated by the provincial government are put into general revenues.

The financial responsibility is borne by the consumer through the Environmental Handling Charges. Also, consumers who choose not to return their containers contribute revenue through the unredeemed deposit. The beverage industry bears no financial responsibility for operating the program.

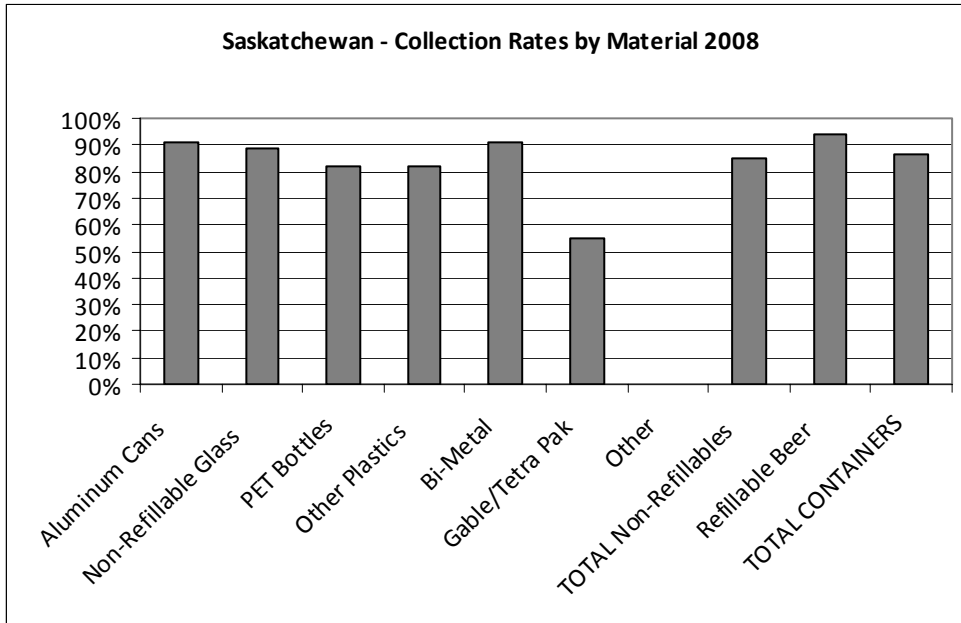
SARCAN along with 21 other recycling service providers is contracted to collect and process milk containers and are paid \$150 per tonne for the gabletop dairy containers and \$350 per tonne for plastic milk jugs. The dairy industry funds these costs plus management and advertising through a levy on all large size milk containers.

Specifically, 1 and 2-litre containers have a 1-cent per container fee while larger than 2 litre units have a 2-cent per container fee.

Collection Rates

Saskatchewan has a total container recovery rate of 87%, the highest total container rate in the country.

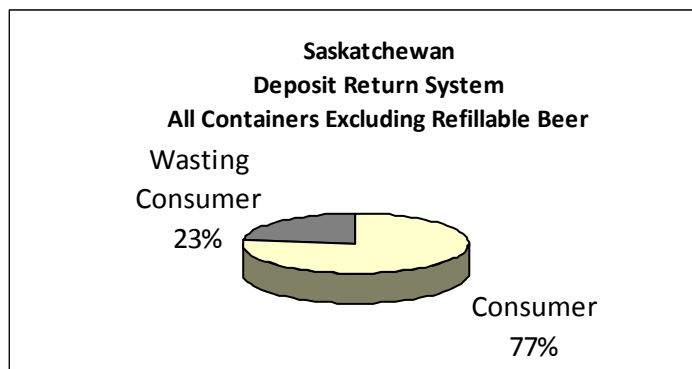
Figure 1.4e



Who Bears the Share

In Saskatchewan, the consumer pays for 77% of the program with the EHC (Environmental Handling Charge). The remaining 23% contribution is from the wasting consumer's forfeited deposits.

Figure 1.4f



Manitoba



Program Scope and Targets

Waste Reduction and Prevention Act – Packaging and Printed Paper Stewardship Regulation

A province-wide program, run by the Manitoba Product Stewardship Corporation was established in 1995 to encourage and help finance the expansion of convenient and efficient residential recycling services across Manitoba.

This regulation was replaced with the *Packaging and Printed Paper Stewardship Regulation* under the *Waste Reduction and Prevention Act* on Dec 22, 2008. The new program, run by Multi Materials Stewardship Manitoba, officially began on April 1, 2010. The program is funded by brandowner levies on all packaging and printed paper. The new program covers all beverage containers including dairy. Non-alcohol beverage container collection is funded through a 2-cent per unit Container Recycling Fee (CRF), which is initially charged to the beverage steward, but in most cases passed on to the retailer and from there to the consumer.

The November 2008 WRAP guideline identifies a beverage container recovery target of 75%.

Refillable and non-refillable beer containers are collected through a separate deposit refund program administered and operated by the beer industry.

Supporting Regulatory Framework

The program is legislated by the *Waste Reduction and Prevention Act*, under the *Packaging and Printed Paper Stewardship Regulation* of 2008, and administered by Multi-Material Stewardship Manitoba (MMSM).

Summary of Initiative

The program, administered by the MMSM, is modeled after the Ontario brandowner stewardship model. Under this model, Stewards (brandowners and first importers) are required to submit to the Minister a stewardship plan to meet the targets set by the Minister. The stewards are also responsible, via yearly updated material levies, for funding 80% of the net costs of operating the program.

The MMSM is an industry-funded organization charged by the Minister with administering the program. The organization is an independent, not-for-profit organization whose Board of Directors primarily comprise of retail, newspaper, printed paper, grocery, and consumer product companies.

Municipal authorities operate or contract out multi-material curbside programs for recovering beverage containers and other packaging and printed paper materials.

The Canadian Beverage Container Recycling Association (CBCRA) is voluntary organization made-up of the grocery sector and beverage companies. CBCRA is focused on implementing and financing an away-from-home recovery program which will help achieve the mandated 75% beverage container recovery target.

The program is funded through a 2-cent Container Recycling Fee (CRF) which is voluntarily paid by most (>90% of beverages) and in most cases passed on to the consumer at the point of purchase. Together, these funds will finance both the away-from-home strategy in addition to their municipal curbside recycling obligation (of 80%). The CRF will be adjusted by the end of 2010 to reflect the true cost of managing each particular material type.

Refillable and non-refillable beer containers are collected through a voluntary deposit return program administered by the beer industry.

Collection Mechanism

Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled and shipped to their respective end-markets for recycling. Not all beverage containers are collected through all municipal programs. For the most part, PET, glass, aluminum and steel containers are collected in most programs, whereas aseptic, gabletop, HDPE and other less common containers are collected in approximately 90% of the programs.

The CBCRA's program which focuses on away-from-home collection of beverage containers will focus its efforts on public spaces (parks, streetscapes..); IC&I locations (gas bars; restaurants; convenience stores; shopping malls..); government buildings; educational institutions; and special events.

Refillable and non-refillable beer containers are collected via beer vendors, Manitoba Liquor Commission and rural agency stores. Brewers Distributors Ltd. collects these empty beer containers, back-haul them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All \$ or cents presented in this report are in Canadian currency)

Under the previous model, the municipal recycling program was funded by consumers and municipalities. More specifically, consumers paid a 2-cent levy on all non-refillable, non-beer containers, which was used to finance 80% of municipal recycling programs. In 2008-2009 the total of these support payments was \$8,660,998. Municipalities paid the additional 20%.

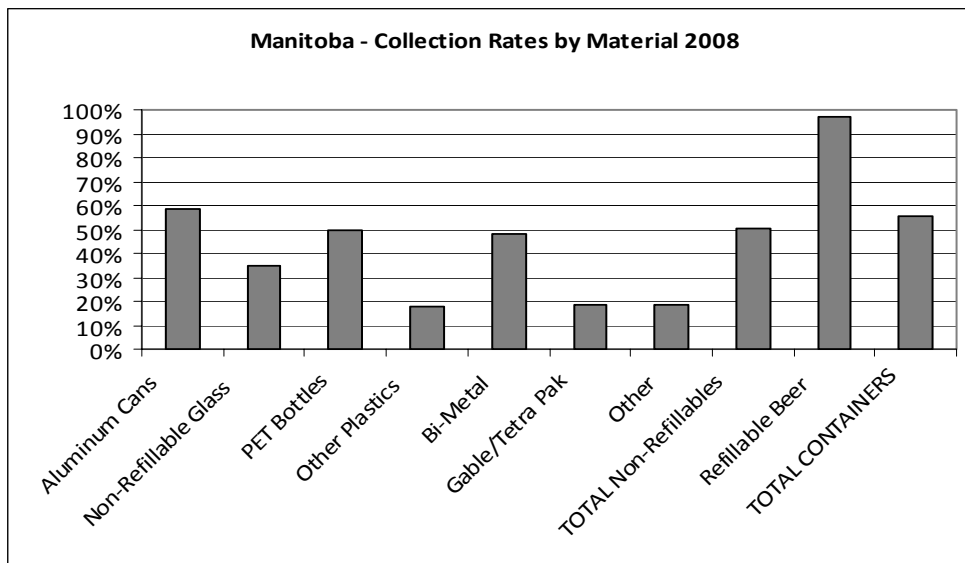
Under the new program, stewardship levies or fees will be determined based on a number of factors including: program costs, recovery rates, and a penalization factor for materials whose recovery rate is performing poorly. Beverage container collection will be almost entirely financed through a 2-cent container recycling fee (CRF) which is voluntarily paid by

most non-alcohol beverage stewards, and then passed through to the consumer. The CRF will raise between \$7-\$9M, which will be used for both municipal curbside and away-from-home collection.

Collection rates

Manitoba has a total container recovery rate of 56%. This is higher than the non-alcohol rate in Ontario and the non-soft drink and beer rate in Quebec (the other two non-deposit regimes) because the deposit bearing beer cans and bottles are included. If the rate did not include refillable beer and beer cans the rate would be significantly lower

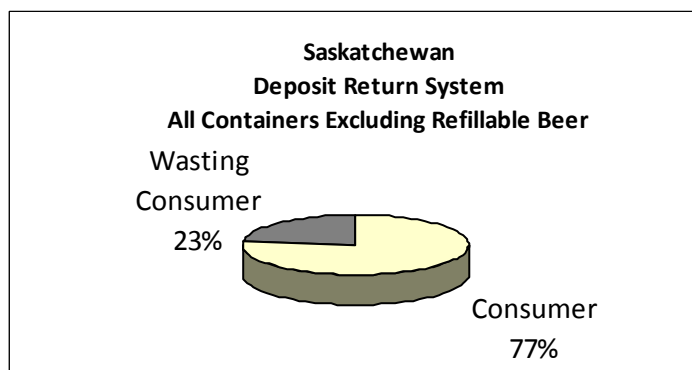
Figure 1.4g



Who Bears the Share

In Manitoba, the beverage consumer pays for 100% of the program with the 2-cent CRF (Container Recycling Fee) on all non-alcohol beverages sold.

Figure 1.4h



Ontario



Program Scope and Targets

Municipal Blue Box Program

The province-wide, regulated residential curbside recycling program has been in place since 1994, under the *3Rs Regulations 101/94*, with the first city program implemented in 1987. Most food and beverage containers, like those made from glass, PET, aluminum and steel are mandated to be included in the program. Other containers like Tetra Pak, gabletop and HDPE bottles may be voluntarily added to the program. Wine and spirit containers were recently placed on deposit, but may be voluntarily added to municipal blue boxes.

In 2004, the Minister of Environment announced a 60% province-wide residential waste diversion target. In October 2009, the Minister of Environment announced his intention to set targets and timeframes in the amended legislation for both material generated in the residential and IC&I sectors (like away-from-home locations). These performance targets are expected in the regulations following the amendment of the *Waste Diversion Act*, projected to be in the summer of 2010 .

There is an ICI regulation (*3Rs regulation 102/94 & 103/94*) that mandates recycling for most commercial sectors and some basic recyclables (excludes multi-laminate containers) that has been in place since 1994. The Ministry has recently been enforcing the regulation.

Regulations also call for 40% of sales of soft-drinks to be refillable, dropping to 30% if a 60% recovery rate for non-refillable bottles is achieved. However, the refillable market share for soft-drinks is less than 1%, and the government is considering repealing the refillable quota. As such, the government has not enforced the requirements since its implementation.

Refillable and non-refillable beer containers are collected through a separate program administered and operated by Brewers Retail Inc. (The Beer Store).

In February 2007, a new deposit return program for all wine, spirits and imported beer, called the *Ontario Deposit Return Program* (ODRP) came into force. The Liquor Control Board of Ontario (LCBO) is responsible for the program and has contracted collection (including return-to-retail collection for licensees, processing and marketing responsibilities to The Beer Store.

Plastic milk jugs with over 2 litres are required to carry a deposit and are redeemable by consumers. Few retailers maintain a deposit return program for these large milk jugs (other than Beckers), as most milk in Ontario is sold through plastic pouches and gabletop cartons.

Supporting Regulatory Framework

Beverage specific regulations are legislated under the *Environmental Protection Act*, 1990. These are: *Refillable Containers for Carbonated Soft Drink*, 1985; *Containers (Regulation 340)*, 1986; *Disposable Paper Containers for Milk* (Regulation 345) 1990; and, *Disposable Containers for Milk (Regulation 344)*, 1990

In addition, the municipal recycling regulations are legislated under the *Environmental Protection Act* of 1990. Specifically: *Recycling and Composting of Municipal Waste* (Regulation 101/94), 1994, and *Industrial, Commercial and Institutional Source Separation Programs* (Regulation 103/94), 1994.

The *Waste Diversion Act (Bill 90)*, 2002 is recent legislation under which the Blue Box and other stewardship programs are regulated. Specifically: *Blue Box Waste (Regulation 273)*, 2002. The *Blue Box Program Plan*, 2003 is not a regulation, but a Minister-approved program plan under the *Waste Diversion Act*.

There is no law which mandates that all wine and spirits sold under LCBO be placed on deposit. ODRP is a voluntary program implemented by the Provincial government, which is responsible for the LCBO.

Summary of Initiative

Municipal authorities operate multi-material curbside programs in place for recovering beverage containers and other packaging and printed paper materials. Municipalities with over 5000 people are mandated to offer curbside collection services for at least aluminum, steel, PET and glass containers. Municipalities may also voluntarily offer recycling services for aseptic, gabletop, HDPE and other container types. About 98% of the Ontario population have access to curbside or depot recycling services.

In February 2003, Ontario brandowners and first importers, known as “stewards” of Blue Box materials, were mandated to finance 50% of the program net costs.

Waste Diversion Ontario (WDO) was established in 2002 “to develop, implement and operate waste diversion programs” for a wide range of materials that include Blue Box Waste. WDO oversees the implementation of the new Blue Box financing program and collects annual cost and recovery data from municipal authorities. Municipal authorities are responsible for all program operations.

Stewardship Ontario (SO) is the not-for-profit agent representing affected industry of stewards. SO collects fees from its members and pays out monies to municipalities.

As of February 2007, wine and spirits were added to the existing deposit return program for beer. The program operations are undertaken by The Beer Store on contract to the Provincial Ministry responsible for the Liquor Control Board of Ontario (LCBO).

Refillable and non-refillable beer containers are collected through a voluntary deposit return-to-retail program administered by The Beer Store. The Beer Store is Ontario’s primary distribution and sales channel for beer products. All brewers whose beer products are sold through The Beer Store fund the system.

More than 86% of the population live within 5 km of a beer container redemption point, of which there are 437 Beer Stores, 39 breweries, 141 retail partner stores, 75 LCBO agency

stores, and 131 empty bottle dealers (small independent depots contracted in more remote locations where beer retailers are not available). This adds up to a total of 823 points of return for empty domestic beer bottles. ODRP containers can be returned at 784 locations, due to the fact that the 39 breweries that take back beer bottles do not take-back wine and spirit containers.

Collection Mechanism

Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled and shipped to their respective end-markets for recycling. PET, glass, aluminum and steel containers are regulated to be collected in all programs, whereas Tetra Pak, gabletop, HDPE and other less common containers are not regulated and collected in fewer programs.

Wine, spirit, beer containers and associated packaging are collected through 437 Beer Stores, 39 breweries, 141 retail partner stores, 75 LCBO agency stores, and 131 empty bottle dealers. The Beer Store trucks collect these empty beer containers, back-haul them to various distribution centres where recyclables are sent to a processing facility for sorting, baling and shipping to market. Refillable bottles are sent back to the brewers for washing and refill.

Program Financing

(Note: All \$ or cents presented in this report are in Canadian currency)

The multi-material municipal recycling program, which also collects beverage containers, is funded by municipalities and stewards. Stewards of packaging, paper and printed paper are brandowners or first importers and publishers.

Each year, Waste Diversion Ontario conducts a tonnage and financial data call with municipalities to determine the total net program costs. From this data, along with material generation estimates, Stewardship Ontario determines “fair” levies to charge stewards based on the type of material sold into the Ontario marketplace. New levy schedules are released annually. Stewards pay levies in quarterly increments.

In 2008, stewards contributed \$54.7 million to municipalities, plus an additional \$3.95 million for other required external program elements, program delivery, administration & GST.

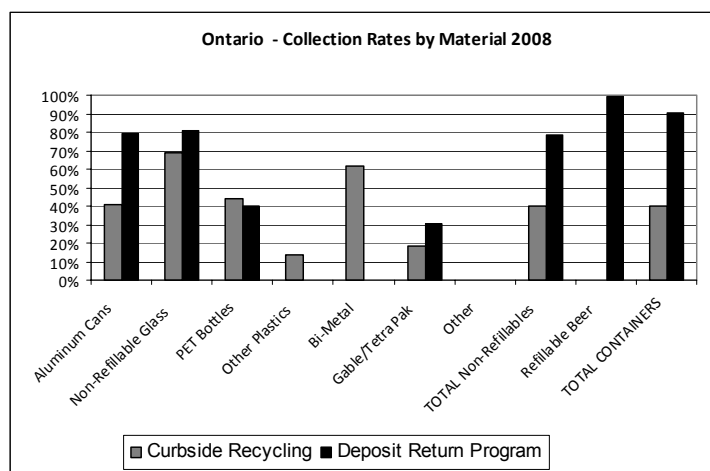
The ODRP program is financed through unredeemed deposits and government revenue. The Beer Store (TBS) is contracted to collect and market all ODRP containers (including those from licensees), as well as administer and monitor the program. TBS receives a service fee in cents per unit. The fee per container, 80% of which are large glass bottles, was 10.5 cents for 2007 and 2008; 10.4 cents for 2009; 10.3 cents for 2010; and 10.25 cents for 2011. This contract expires in February 2012.

Collection Rates

Ontario has a hybrid collection system where beverage containers are recovered via two streams. All alcohol containers are returned for deposit refund via The Beer Store's Packaging Recovery Program and the Ontario Deposit Return Program (ODRP). All other beverage containers are collected via the provincial Blue Box Program.

Those containers returned through the deposit programs show a total collection rate of 91%. This rate is higher than other deposit program rates in the country because of a combination of the high collection rate for the refillable beer bottle (98%) and a high market share for that bottle in the province (71% of all beer containers sold). Containers collected via the municipal system show an overall collection rate of only 40%.

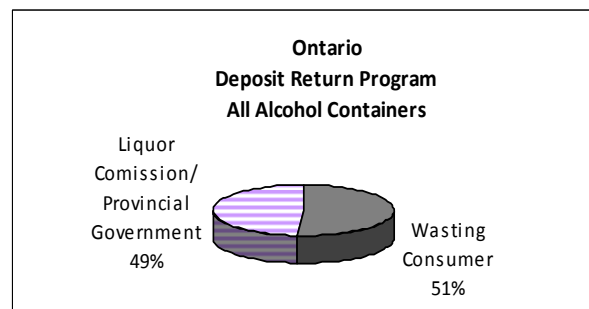
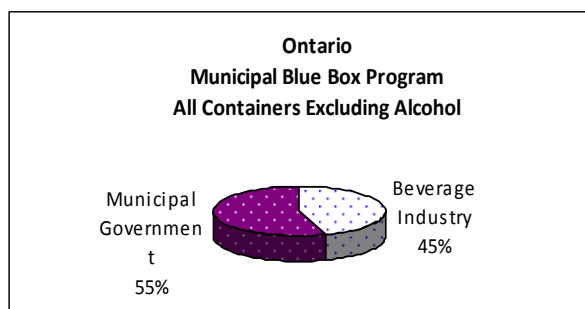
Figure 1.4i



Who Bears the Share

The two programs in Ontario are funded by different funders. The municipal curbside system is funded by municipalities (55%) and industry stewards (45%). Industry also contributes an additional 5% to finance continuous improvement programs. This is going to change to 100% financing by the industry stewards as per policy direction from the Ministry of Environment. For the ODRP, 51% of the cost is borne by the wasting consumer while the other 49% comes from the Liquor Control Board of Ontario (LCBO), which is a crown corporation of the Province.

Figures 1.4j & 1.4k



Quebec



Program Scope and Targets

Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Soft Drink Containers (January 2007)

Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Beer Containers (September 2008)

The province-wide program has been in place since 1984. All non-refillable soft drink (this includes all carbonated water with essence of flavour, including carbonated energy drinks such as red bull) and beer containers are managed through a deposit return program.

The recovery target for soft drink container is 71% for the twelve month period ending December 31, 2008; 72% for the twelve month period ending December 31, 2009, and 73% for the twelve month period ending December 31, 2010.

For beer containers, the recovery targets are: 76.13 % for the twelve month period ending December 31, 2008; and 76.63% for the twelve month period ending December 31, 2009

By March 2005, through an amendment to the *Environment and Quality Act*, the Province created a legal obligation for stewards of packaging and printed materials to fund municipalities up to 50% of the net cost for curbside recycling, which included all beverage containers (except soft-drinks and beer on deposit) and their associated packaging materials (cases, etc.). Currently, non-deposit bearing materials can be collected through municipal curbside programs.

Supporting Regulatory Framework

The programs are regulated under the *Environmental Quality Act*.

Recyc-Quebec took over regulatory authority for the program in 1990, supported by *An Act Respecting the Société Québécoise de Récupération et de Recyclage*.

In addition, beer and soft-drink industries are legislated under *An Act Respecting the Sale and Distribution of Beer and Soft Drinks in Non-Returnable Containers* 1996 and *Beer and Soft Drinks Distributors' Permits Regulation*.

The program details are set-out in an industry-government agreement, called: *Non-legislative Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Soft Drink Containers*. The agreement was first reached on December 1st 1999 between the Ministère du Développement Durable, de L'Environnement et des Parcs, the Société Québécoise de Récupération et de Recyclage (Recyc-Québec) and the "Association des Embouteilleurs de Boissons Gazeuses du Québec Inc., Boissons Gazeuses Environnement (BGE) and its

registrants. The most recent Agreement was reached with the same partners on January 1st 2007 and will be in effect until December 31, 2010.

In November 2004, the government of Québec adopted the *Regulation Respecting Compensation for Municipal Services Provided to Recover and Reclaim Residual Materials*, which institutes a new municipal compensation regime of 50% of the net program costs as of March 1st. 2005. This obligates all beverage producers (including milk) to fund curbside recycling. Soft-drink and beer containers are exempt from this program.

In November 2009, the Province issued their official policy on residuals management, in which they state that they prefer the curbside recycling program for the collection of all packaging and printed papers, including soft drink containers. However, unless the beverage industry can prove that they can achieve 70% recovery through alternative mechanisms to the existing system, deposit return for beer and soft drinks will remain in place. In addition, in the short term, the Ministry also stated that if the recovery rates do not increase to 70% or greater in the next two years, the government may actually increase the level of the deposit on these containers.

On March 17, 2010, Quebec's Minister of Sustainable Development, Environment and Parks tabled Bill 88 which establishes the framework for industry contributions towards Quebec's municipal recycling programs. More specifically, the Act outlines that industry's contribution will cover a share of the costs associated with collection, transportation, sorting, conditioning, and indemnity for the management of the program. The Act establishes that the share of industry compensation cannot exceed 70% in 2010; 80% in 2011 & 2012; and 90% for 2013 & 2014, excluding payments for administration.

Summary of Initiative

The program is overseen by Recyc-Quebec, a crown agency responsible for monitoring performance, increasing or decreasing the deposit levels and education and promotion. Recyc-Quebec also administers the program for non-refillable beer containers.

Boisson Gazeuses Environment (BGE) administers the program on behalf of the soft drink industry. Boissons Gazeuses Environment took over this role from Recyc-Quebec on December 1, 1999.

Refillable beer containers are collected voluntarily by the beer industry using the same collection infrastructure.

The program is based on a return-to-retail collection system, with over 40,000 licensed grocers, service stations, pharmacies etc. acting as redemption points for containers.

All other beverage containers, including those used for wine, spirits, water, non-carbonated flavoured drinks, juices and milk are collected through municipal curbside collection programs available throughout most of Quebec. As of March 2005, the municipal program

costs were shared 50/50 between municipalities and stewards (brandowners and first importers).

Collection Mechanism

Soft drink and beer containers are returned to over 40,000 grocers, service stations, pharmacies, etc. Upon return, consumers are provided with a full refund.

Distributors are required to collect redeemed containers from the vendors. About 32% of soft drink containers are collected using the same trucks that deliver full goods (reverse logistics). The remaining ~ 68% of soft drinks and 100% of non-refillable beer containers are collected using brand-owner dedicated transport. These containers are then consolidated at distribution warehouses for shipment to accredited recyclers. Distributors keep the revenue associated with the recycling exchange. Refillable beer bottles are sent back to the brewers for washing and refill.

Program Financing (Note: All \$ or cents presented in this report are in Canadian currency)

Return Incentives paid to retailers (2-cents per unit) fund the retail collection portion of the program. Funding for the Return Incentives is generated from unredeemed deposits. Distributors pay (through contracting) directly for transportation and processing, which are offset by material revenue (sale of cans, plastic and glass). This means that if material revenue is high enough, that revenue may completely cover those costs. However, given that all recyclable materials have experienced a decline in value since 2008, it is likely that this program is currently a net cost to industry. This information is proprietary; therefore actual system costs are unavailable. However, program cost and revenue estimates have been determined to provide a fairly good approximation of the expenses and revenue for the system.

In addition, currently the soft drink industry pays a 0.15-cents (or \$0.0015) per unit sold fee to Boissons Gazeuses Environment (BGE) to cover administrative costs.

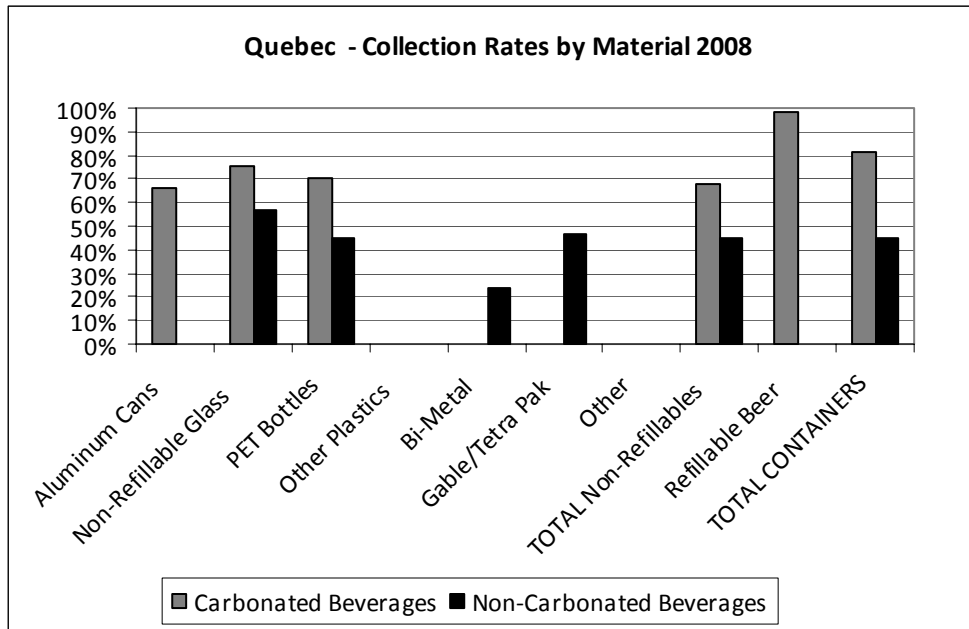
Collection Rates

Quebec has a hybrid collection system where beverage containers are recovered via two streams. All carbonated beverages (Including beer, soft drinks, carbonated energy drinks etc.) are collected in a return to retail deposit program. All other beverage containers all collected via municipal Blue Box programs

The beverages collected in the return to retail program have an overall collection rate of 82%. The containers collected via the municipal Blue Box Program are collected at a rate of 45%

Figure 1.4k shows the rates for the systems together. Like Ontario, Quebec has a high rate of use and collection for the refillable beer bottle. The column that best compares the two systems is PET as there are substantial amounts of PET in both streams.

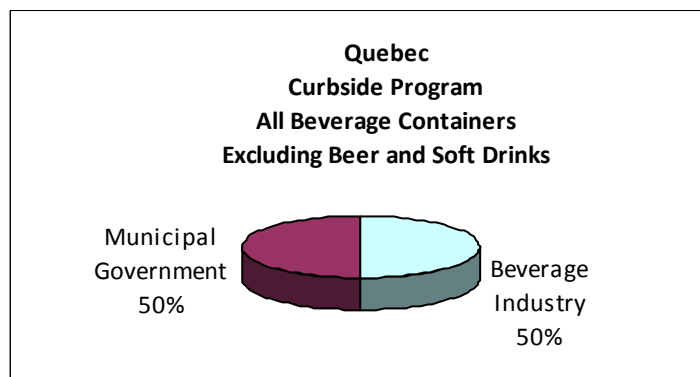
Figure 1.4l



Who Bears the Share

The two programs in Quebec are funded via different streams. The Collect Selective (municipal curbside) program receives about 50% of its funding from the municipalities and the other 50% from the beverage industry. It is anticipated that industry will be responsible for 100% of program financing, if Bill 88 is passed. (note Bill 88 was tabled in March 2010).

Figure 1.4m



The deposit return program for beer and soft drinks is almost entirely funded by the wasting consumer. Because the cost data is proprietary, actual share of costs is unavailable. Depending on the various program costs and material revenues, the share of costs can change, but in general the wasting consumer bears the lion's share of costs.

Nova Scotia



Program Scope and Targets

Nova Scotia Deposit-Refund System

The province-wide program has been in place since April 1996. Most beverage containers are included as the regulation defines a beverage as any liquid that is a ready to serve drink, excluding milk, milk products, soya milk or concentrates. Resource Recovery Fund Board (RRFB) policy further clarifies that infant formulas, rice milk as well as certain dietary and meal replacement beverages that meet specific policy criteria are not subject to a deposit.

There are no provincial targets for containers recovered under the program; however a 2006 amendment to the *Environment Act* has legislated a new disposal target of 300 kilograms per person per year by 2015. This means diverting an additional 177 kilograms of waste per capita (based on 2006-07 data) which would see Nova Scotians achieve an overall diversion rate of approximately 60 percent.

Nova Scotia Milk Packaging Stewardship Agreement

Launched in February 2000, this is a voluntary arrangement between Nova Scotia Environment (formerly Environment and Labour), the Nova Scotia Solid Waste Management Regions and the Atlantic Dairy Council. The program funds the recovery of all milk packaging through province-wide municipal curbside (blue bag) programs. The agreement identifies the following fiscal year-end (March 31) recovery targets: 27% by 1999, 32% by 2000, 39% by 2001, 43% by 2002, 45% by 2003 and 47% by 2004.

Supporting Regulatory Framework

The program is legislated under the *Solid Waste-Resource Management Regulations* made under Section 102 of the *Environment Act* (1994-95).

The Resource Recovery Fund Board (RRFB) was created under these same regulations to assume administrative authority for the program.

Summary of Initiative

Resource Recovery Fund Board, Inc. (RRFB) was incorporated in 1996 to administer major components of the Nova Scotia Solid Waste-Resource Management Strategy (1995). The Board, operating as RRFB Nova Scotia, was tasked with five mandates: one of which was to develop and operate a deposit-refund system for beverage containers.

The program model is the half-back system which contributes to covering program costs and other diversion initiatives as required under regulation and as directed by the Minister of Environment.

Distributors of deposit-applicable beverage products must register with RRFB in order to legally sell these products in or into Nova Scotia. They must also report and remit applicable deposit amounts monthly on units sold directly to RRFB.

From the distributor's sale of product down the chain to the retailer's sale of product to the consumer, it is a cost recovery exercise. Retailers are required by regulation to show the deposit amount charged on the sales receipt and display a notice identifying the location of the nearest depot where a beverage container can be redeemed for a refund.

RRFB Nova Scotia established a province-wide Enviro-Depot™ network to accept redeemable beverage containers from consumers.

Collection Mechanism

There are currently 83 privately owned and operated Enviro-Depot™ locations in Nova Scotia. Each owner/operator must sign a standard form agreement with RRFB Nova Scotia to become an Enviro-Depot™.

Consumers may bring their empty redeemable beverage containers directly to any Enviro-Depot™ for a five or ten cent refund (depending on container type and size). The depot sorts containers by type and colour, storing them in bulk bags or tubs. RRFB arranges collection of full bags and tubs from the depots and transports them to the nearest of three Regional Processing Centres (RPCs). Plastic, aluminum and glass are all marketed by the RRFB.

Note: All Enviro-Depot™ locations are required to also accept leftover paint and any other material designated by RRFB from time to time. Some individual operators also accept cardboard, newsprint, metals and auto/marine batteries but at their own discretion.

Enviro-Depot™ operators have a separate arrangement with the breweries to accept refillable domestic beer bottles from consumers which are sorted and sent back to the brewers for washing and refill.

Program Financing (Note: All \$ or cents presented in this report are in Canadian currency)

Deposit-Refund System

The Nova Scotia program is a half-back system where half of the 10 or 20 cent deposit is refunded to the consumer. The remaining half of the deposit plus revenues generated from the marketing of these container materials is used to pay for program costs which includes the handling fee (per container) paid to Enviro-Depot™ operators.

Due to the fact that not all beverage containers sold in the province end up being returned for a refund, a portion of these excess funds (unredeemed deposits) are mandated to be distributed to municipalities to help offset the cost of their waste diversion initiatives.

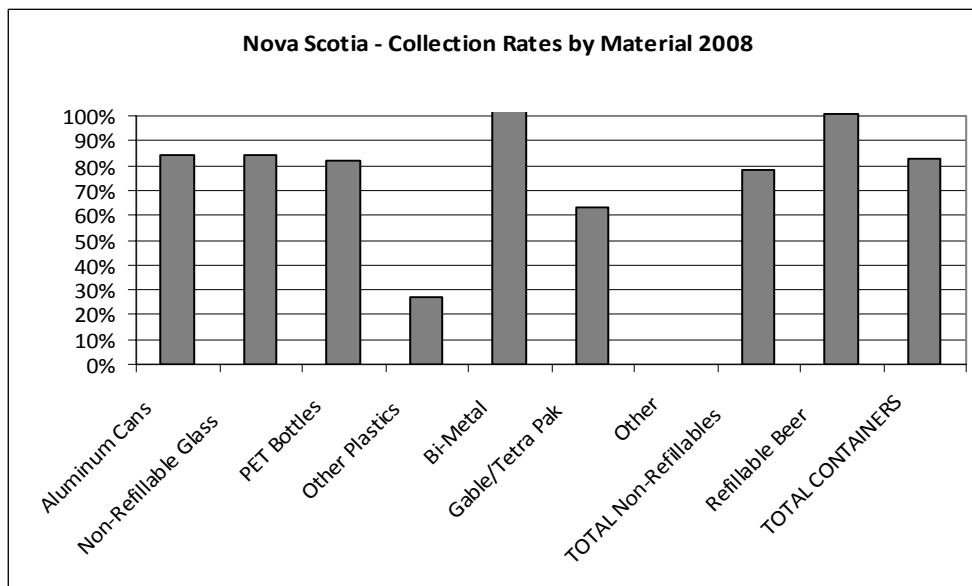
Nova Scotia Milk Packaging Stewardship Agreement

The Atlantic Dairy Council currently contributes \$417 per tonne to municipalities to offset their costs of recovering and recycling milk packaging. This equates to an industry cost of less than 1 cent per milk container sold in Nova Scotia.

Collection rates

Nova Scotia has an overall container collection rate of 83%, the highest in the Atlantic Provinces. The province has very high collection rates of 84% and 82% for aluminum cans and PET containers respectively.

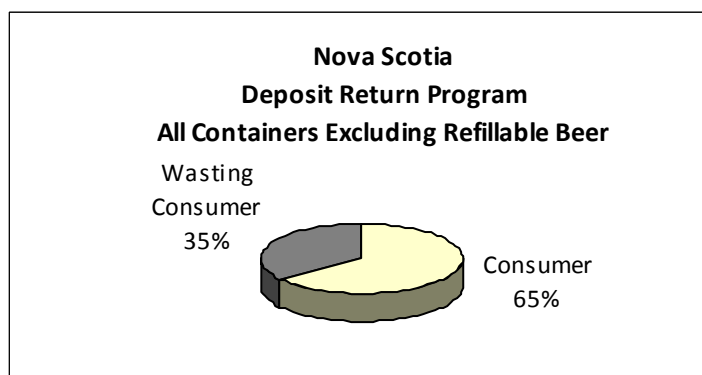
Figure 1.4n



Who Bears the Share

Nova Scotia's half-back deposit return system is funded in part by the wasting consumer who does not redeem his container for refund (35%) and in part by the consumer who does return their container (65%) from the un-refunded portion of their deposit (half-back).

Figure 1.4o



New Brunswick

Program Scope and Targets

New Brunswick Beverage Container Recovery Program

The province-wide program was established in 1992. The regulation covers all ready-to-drink non-refillable beverage containers up to a size of five litres. Milk and milk products, and un-pasteurized cider are exempt.



The regulation also covers refillable beer bottles, which are redeemed for full deposit and sent back to brewers for refilling.

The regulation does not specify any targets, though the Department of Environment has an unofficial target of 80% recovery for designated containers.

Supporting Regulatory Framework

The program is legislated under the *Beverage Containers Act, 1991* and the *General Regulation – Beverage Containers Act, 1992*.

Summary of Initiative

The Department of Environment oversees the program. Distributors are required to recover their containers. The Department of Environment registers distributors of containers sold in the province.

Encorp Atlantic is responsible for managing non-alcoholic container recovery on behalf of non-alcohol brand owners.

New Brunswick Liquor Commission is responsible for the recovery of liquor containers (wine, beer, spirits and coolers), and contracts transportation and processing of their containers to Rayan Investments.

Collection Mechanism

There are 78 individually owned and operated depots in the province. All depots must be licensed with the New Brunswick Department of Environment. Consumers bring used beverage containers directly to these depots, where they are sorted.

Encorp Atlantic organizes the collection of all non-alcohol containers from the depots, sends materials for processing, and markets them. Rayan Investments organizes collection of all alcohol containers (mostly glass) from the depots, sends materials for processing, and markets them. Refillable beer bottles are sorted and sent back to the brewers for washing and refill.

Program Financing (Note: All \$ or cents presented in this report are in Canadian currency)

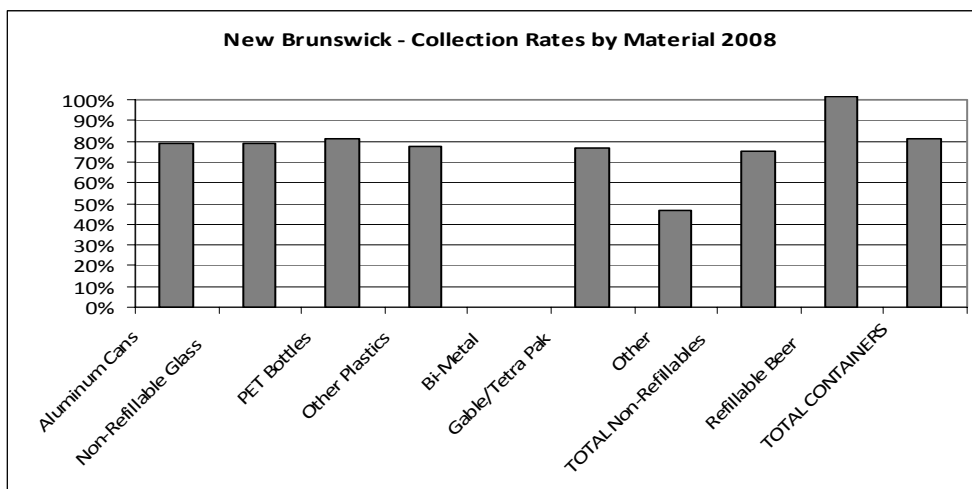
New Brunswick operates a half-back system where half the deposit is not refunded. 50% of this half-back revenue, plus the revenue generated from the unredeemed deposits and the sale of containers, is used to pay for the program, which includes the handling fee per unit to redemption centres.

The remaining 50% of the half-back revenue goes into the province's Environmental Trust Fund and is used for beautification, conservation, etc. The Department of Environment manages the fund.

Collection rates

New Brunswick has a total container collection rate of 81%. This is average for a Canadian deposit-return province.

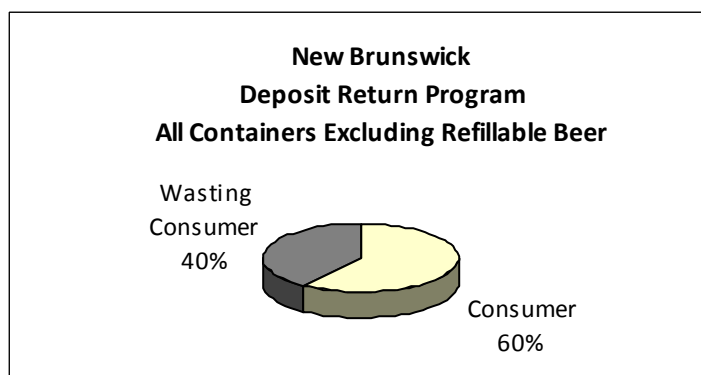
Figure 1.4p



Who Bears the Share

New Brunswick's half-back deposit return system is funded in part by the wasting consumer who does not redeem his container for refund (40%) and in part by the consumer who does return their container (60%) because only half of their deposit is refunded.

Figure 1.4q



Newfoundland and Labrador



Program Scope and Targets

Provincial Beverage Recycling Program

The province-wide program has been in place since 1997. The regulation covers all ready-to-drink beverage containers (excluding milk, infant formulas, refillable bottles and containers more than five litres).

The regulation does not specify targets, however the Department of Environment has set targets of: 50% after year one, 60% after year two, 70% after year three 80% after year four.

Supporting Regulatory Framework

The program is regulated under the *Environment Protection Act, 2002* and the *Waste Management Regulation, 2003*.

Summary of Initiative

The program, which began in 1997, requires that deposits be paid on all regulated beverage containers.

Consumers pay either 8-cents on non-alcohol containers or 20-cents on alcohol containers and receive 5-cents or 10-cents back when they are returned to one of 76 Green Depots, satellite and mobile units.

The Multi-Materials Stewardship Board (MMSB) is a crown corporation established pursuant to The *Environmental Protection Act*. This Board manages the Used Beverage Container Deposit Refund System, the Used Tire Recycling Program, and the Newfoundland and Labrador Waste Management Trust Fund in the Province of Newfoundland and Labrador and is mandated to support and promote the protection, enhancement and wise use of the environment through waste management programs.

Collection Mechanism

Consumers bring containers to 76 Green Depots, satellite depots or mobile units within the province. Currently, 88 percent of the provinces population is within 20 kilometres of one of these depots. The Multi-Materials Stewardship Board arranges for collection from the depots to one of three processing plants in Newfoundland and Labrador, where material is processed and shipped to end-markets.

Brewers operate an independent deposit-return system. Refillable beer bottles are exempt from the depot system under the *Waste Management Regulations*. The containers are handled through an independent return-to-retail system. Refillable beer bottles are sold through corner stores and two Brewers Retail Inc. (BRI) stores in St. John's. Beer is sent to 27 wholesalers who then deliver to the corner stores and the BRI outlets. Containers are fully refunded at these locations.

The wholesalers are paid a handling fee for the empties which are picked up at the retailer. MMSB is not responsible for the management or administration of refillables.

Program Financing (Note: All \$ or cents presented in this report are in Canadian currency)

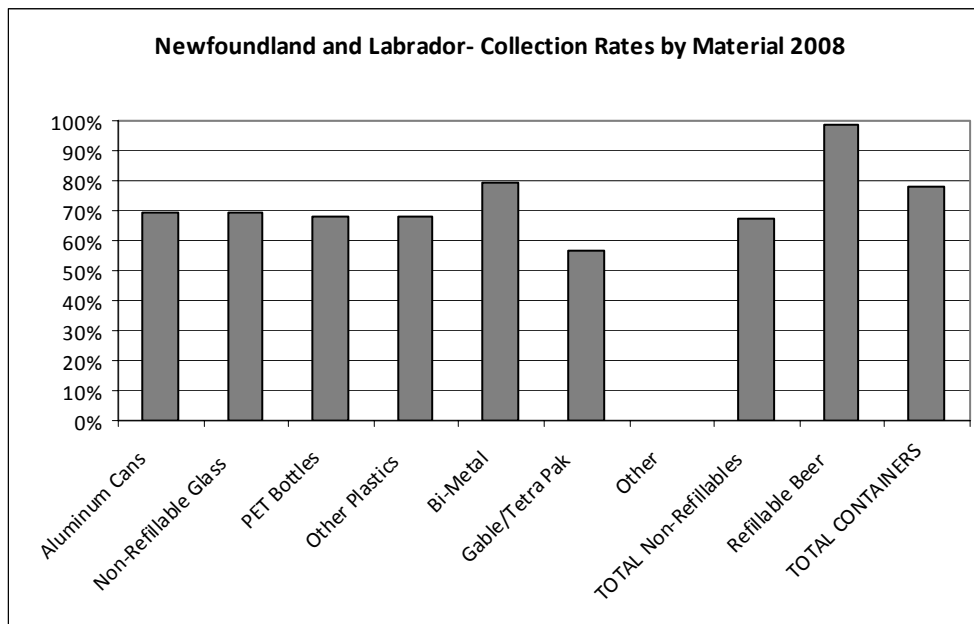
The program is funded through revenue generated from the sale of empty beverage containers and unredeemed deposits.

The program also uses part of the revenue generated from the non-refunded portion of the deposit to offset costs. In Newfoundland & Labrador, the system is similar to a half-back program in principle, but it provides 5-cents for non-alcohol containers returned based on an 8-cent deposit, and 10-cents for alcohol containers returned based on a 20-cent deposit. Excess revenue is placed in the province's "Waste Management Trust Fund".

Collection rates

Newfoundland and Labrador show an overall container recovery rate of 78%. This rate is slightly lower than in the other Atlantic Provinces. This may be attributable to the fact that the program is newer than the others.

Figure 1.4r



Prince Edward Island

Program Scope and Targets

Prince Edward Island Beverage Container Recycling Program

The province-wide program has been in place since May 3, 2008. The program covers all ready-to-drink beverage containers except those used for dairy products, milk substitutes or nutritional supplements.



Prior to the introduction of this program, there was a provincial mandate that all carbonated-soft drink and beer were packaged in refillable containers (effectively banning one-way containers for these beverages) dating back to 1973 for beer and 1984 for soft drinks.

In 1992, the program placed a half-back deposit on all non-refillable wine, spirit and cooler containers.

Late in 2007, the government repealed the law prohibiting non-refillable beer and soft-drinks on the island. On April 15, 2008 the Minister of Environment, Energy and Forestry announced the expanded program designed to manage all the new one-way containers which would replace refillables.

There are no official targets for these materials in the regulation.

Supporting Regulatory Framework

The program was regulated under the *Environmental Protection Act*, 1988 and the *Litter Control Regulations*, 1992. As of May 3rd, 2008 a new deposit return program is mandated under the *Beverage Containers Act, 2008 (Bill 14)*.

Summary of Initiative

All non-refillable beverage containers are subject to a deposit. The program is a half-back system similar to the other Atlantic provinces.

There are 10 province-wide depots that will serve as collection centres.

The program is overseen and administered by the province. In addition, the Island Waste Management Corporation (IWMC) operates and maintains the Waste Watch Program; a 3-stream source separation based waste management system that is Island-wide. Through the Waste Watch program, all non-beverage containers and containers used for milk are collected and recycled.

All island residents have access to the Waste Watch recycling program, which is funded through a per household charge.

Collection Mechanism

All non-refillable beverage containers subject to deposits can be returned to 10 province-wide depots for a half-refund.

Containers used for milk and other exempted beverages are collected through the Island's Waste Watch curbside recycling program available to all island residents.

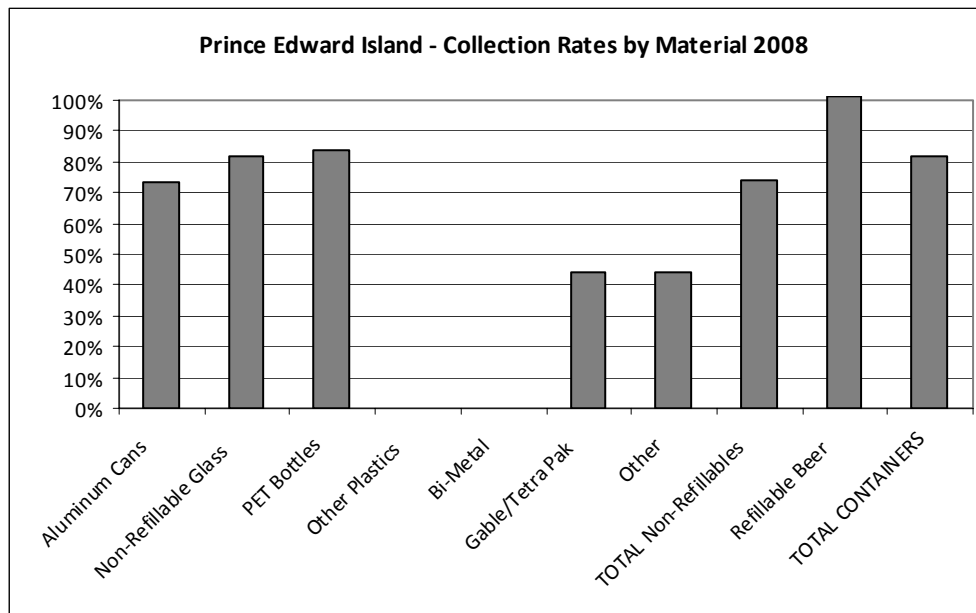
Program Financing

Prince Edward Island operates a half-back system on all non-refillable beverages, where half of the deposit is not refunded. Unredeemed deposits and half-back revenue accrue to the provincial treasury.

Collection rates

Prince Edward Island has a total container collection rate of 81%, average for deposit return jurisdictions.

Figure 1.4s



Yukon

Program Scope and Targets

The program began with the *Beverage Container Regulation* (Under the *Environment Act*) in 1992. The original regulation covered only aluminum cans and refillable beer bottles. The regulation has been amended twice. In 1996, glass and plastic containers were added and in 1998 the regulation was again expanded to include tin and Tetra Paks. All ready-to-serve beverages except milk and milk products are included.



Supporting Regulatory Framework

The *Beverage Container Regulation* of 1992, under the *Environment Act*, set out the initial deposit return program. Amended in 1996 and in 1998 *The Recycling Fund Regulation*, under the *Environment Act*, establishes the fund from which the program is to be financed.

Summary of Initiative

The regulation covers all glass, plastic, steel, aluminum, and Tetra Pak containers of ready to drink beverages other than dairy or dairy substitutes.

The consumer pays a deposit, which includes a refundable portion and a non-refundable Recycling Fund Fee (RFF) when they purchase beverages; Consumers receive a refund when they return the empty containers to a registered recycling depot. The non-refundable RFF (Similar to the non-refundable portion of the Atlantic Provinces Half-Back scheme) collected by retailer goes into a Recycling Fund that is administered by the government but kept separate from government's general revenues.

Money from the fund helps registered recycling centres pay their collecting, processing and shipping costs. The fund is also used to promote container returns, improve recycling facilities at community depots and pay part-time wages for depot staff. The program is overseen by Environment Yukon.

Collection Mechanism

Containers are taken to one of 19 depots in the territory to receive the refund portion of the initial surcharge. The depots send containers to one of two processing facilities in the territory that processes the containers further and sell the container material into the commodities markets.

Program Financing

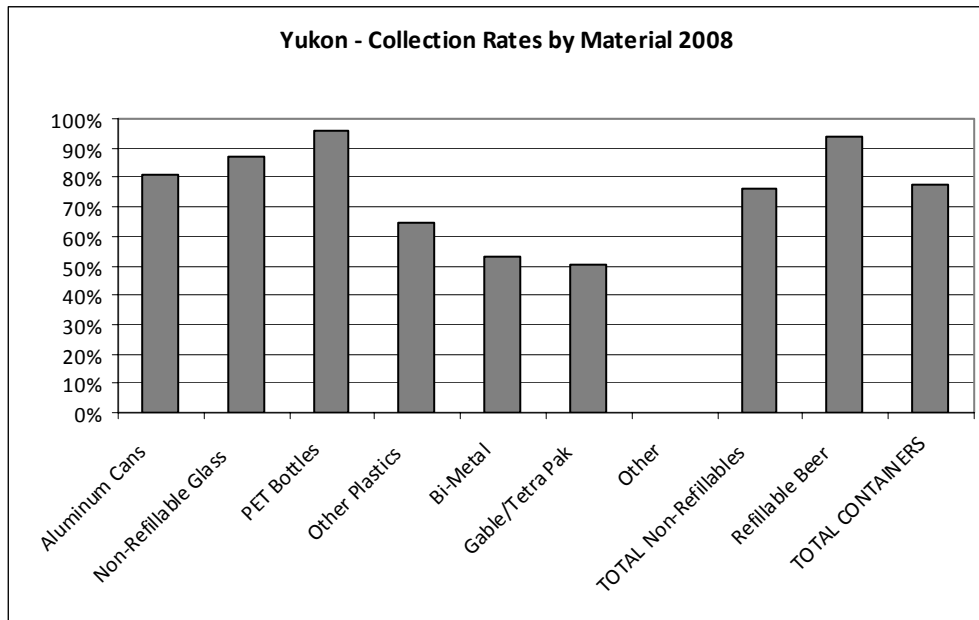
The Retailer collects a deposit, which includes a refundable portion and a non-refundable Recycling Fund Fee (RFF) at the point of purchase. The RFF goes into a Recycling Fund that is administered separately from the government's general revenues and is used solely for recycling purposes.

The Recycling Fund pays out a handling fee to the depot and a processing fee to the processing facility. The Fund also pays for transportation, education, improvements to depots, and the Recycling Club, a youth recycling promotion organization.

Collection Rates

Yukon has an overall container collection rate of 78%. This is very good for a program that covers a small population spread out over a wide geographic area.

Figure 1.4t



Northwest Territory

Program Scope and Targets

The *Beverage Container Regulations*, under the *Waste Reduction and Recovery Act*, came into force in November of 2005. The regulation covers any sealed beverage container made of metal, plastic, paper, glass or other material, or a combination of them, that contains or contained a beverage that is ready for consumption.



As of February 15, 2010, The *Beverage Container Regulations* under the *Waste Reduction and Recovery Act* was amended to include all containers for milk and milk supplements excluding those with infant formula or milk products in containers less than 30ml.

Supporting Regulatory Framework

The *Beverage Container Regulations*, in the *Waste Reduction and Recovery Act*, establish the laws and the funding for the program.

Summary of Initiative

The program is overseen by the Department of Environment and Natural Resources (ENR). The ENR administers the program by enforcing the *Act* and the *Regulations*, coordinating and supporting local depots and regional processing centers, coordinating public information, improving the program, and undertaking audits or checks on distributors, importers, stores, depots and processing centres.

At the point of purchase the customer is charged a deposit and a non-refundable Consumer Handling Fee (CHF). The CHF is used to pay for the program. The consumer receives the deposit back upon returning the container to a licensed depot.

Collection Mechanism

Containers are taken to one of 27 licensed depots to receive the refundable deposit back.

The depots collect, sort and bag the containers and ship them to a processor who further process the containers and sell them back into the commodities market.

As of March 31, 2010, 28 NWT communities had licensed depots. These communities made up 98% of the Territory's population. There are three processing centres, one in each of Yellowknife, Hay River, and Inuvik.

Program Financing

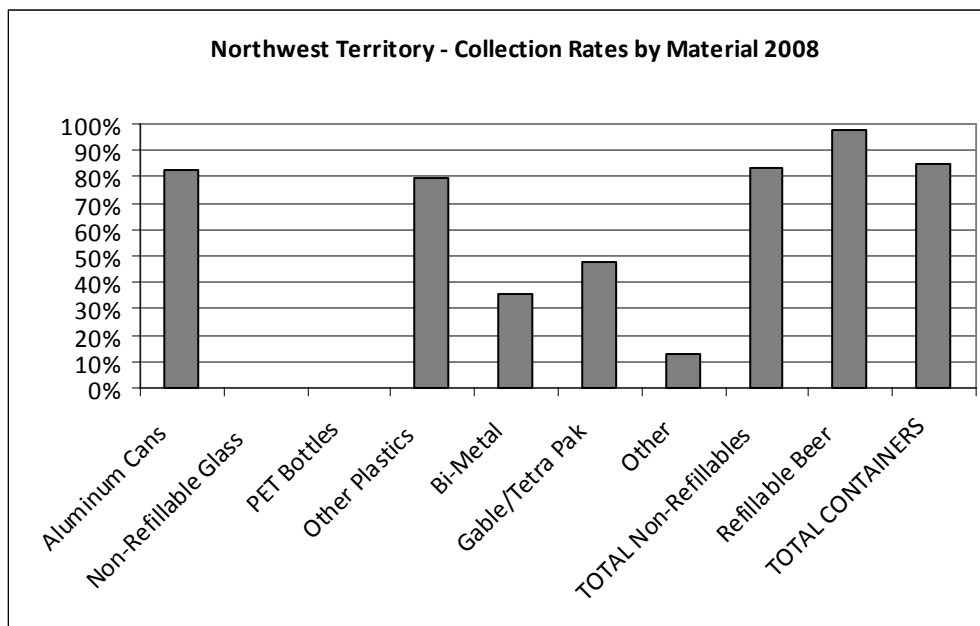
Money generated from the Beverage Container Program goes into the Environment Fund and is used to pay for program expenses including paying out the refundable deposit, processing centre and depot handling fees, transportation, storage, minor equipment purchases, and other administration costs. All program revenue and expenses come out of the Environment Fund. The Environment Fund is a special purpose fund created under the Act that is separate from the general government account.

Excess revenue from the program stays in the Environment Fund and is used to improve the program and implement other waste reduction and recovery programs and initiatives.

Collection rates

Northwest Territory has an overall container collection rate of 85%. This is very good for such a young program in a challenging geographic region. There have been some reporting issues in Northwest Territory though. It is possible that the plastics numbers are inflated.

Figure 1.4u



PART 2 – ENVIRONMENTAL BENEFITS FROM REUSING AND RECYCLING BEVERAGE CONTAINERS

Traditionally, the measurement of waste and recycling has been based on the weight of material disposed of or diverted. More recently however, recycling measurements are being expanded to comprise of factors which include the amount of energy saved and the reduction in greenhouse gas emissions from reuse and recycling. These new measurements provide a much more comprehensive understanding of the environmental and economic impacts of beverage container diversion.

Both Environment Canada and the US Environmental Protection Agency have undertaken extensive life-cycle analyses which measure the inputs and outputs from cradle-to-grave of various materials. The results can be applied to beverage container diversion in order to quantify the environmental benefits associated with those programs. The following tables summarize the results. Note: Some tonnage information from some provinces is not available in this report. Therefore, provincial totals should not be compared with each other.

CM Consulting calculated the total avoided emissions (and equivalent cars off the road), by multiplying the tonnage recovered by container type with an emissions reduction factor for each material type provided by Environment Canada's *Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions: 2005 Update Final Report*.

Further, CM Consulting calculated the total avoided energy (and equivalent barrels of oil avoided), by multiplying the tonnage recovered by container type with an energy savings factor for each material type provided by Environment Canada's *Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions: 2005 Update Final Report*.

All container specific tonnage collected by province and container type, and multipliers used are available in the Appendix to the report. To receive a copy of the Appendix and all of the associated supporting data for this section, please contact CM Consulting at Morawski@ca.inter.net or call 416-682-8984.

Table 2a

**Summary of Environmental Benefits from Reusing & Recycling
Beverage Containers in Canada**

| Province | Avoided emissions (MTCO ₂ e) | Equivalent number of cars taken off the road. | Total GJs saved | Avoided crude oil extraction (in barrels) | Value of crude oil saved (based on \$82.66/barrel) |
|----------------------|---|---|-------------------|---|--|
| British Columbia | 101,303 | 19,370 | 1,257,002 | 199,524 | 16,492,660 |
| Alberta | 145,349 | 27,791 | 2,413,012 | 383,018 | 31,660,252 |
| Saskatchewan | 34,347 | 6,567 | 666,808 | 105,843 | 8,748,942 |
| Manitoba | 27,631 | 5,283 | 533,070 | 84,614 | 6,994,212 |
| Ontario | 296,141 | 56,623 | 5,906,004 | 937,461 | 77,490,518 |
| Quebec | 198,188 | 37,894 | 4,312,065 | 684,455 | 56,577,027 |
| New Brunswick | 23,174 | 4,431 | 454,212 | 72,097 | 5,959,550 |
| Nova Scotia | 32,412 | 6,197 | 629,883 | 99,981 | 8,264,466 |
| Newfoundland | 11,209 | 2,143 | 242,854 | 38,548 | 3,186,395 |
| Prince Edward Island | 3,886 | 743 | 82,070 | 13,027 | 1,076,812 |
| Yukon Territory | 1,202 | 230 | 15,662 | 2,486 | 205,489 |
| Northwest Territory | 1,762 | 337 | 22,576 | 3,584 | 296,218 |
| TOTAL | 876,604 | 167,611 | 16,535,217 | 2,624,638 | 216,952,540 |

Notes and sources on multipliers used:

- All tonnage data is based on reported tonnes by program and container types. (For tonnage data contact CM Consulting directly.)
- Refillable bottles tonnage is based on an average container weight of 263 grams multiplied by the number of units recovered and further by 14/15, which represents an average of 15 individual trips per refillable bottle. For the remaining 15th trip (the last trip), it is assumed that the glass is being recycled.
- Source for avoided energy and emission multipliers: *Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions*: 2005 Update Final Report, Environment Canada & Natural Resources Canada, October 2005
- GHGs per car per year 5.23; Source: www.epa.gov/cleanenergy/energy-resources/calculator.html
- One barrel of crude oil is equal to about 6.3 GJ of energy. Source: US Department of energy – Energy Efficiency and Renewable Energy – Industrial Technologies Program
- The value of a barrel of crude oil on May 4, 2010 was \$82.66. Source: www.bloomberg.com.

PART 3 – REUSE, RECYCLING, AND USE OF RECYCLED CONTENT

3.1 Reuse & Recycling by Container Material

While the market crash of 2008 had a huge impact on the value of recyclable commodities in Canada, in most cases, even though revenues were down, the material was able to move as it had in the past. In some cases, municipal curbside collection programs did have difficulty selling their container commodities due to insufficient quality, as buyers were increasingly discriminating about contamination levels. In general deposit return programs provide the highest quality of material commodities and earn the highest per tonne price compared to containers collected commingled with other materials. Empty containers are bought and sold like any other commodity. Markets vary depending on the consistency of quantities and the quality (the amount of contamination).

The following is a description, by material, of the supply and market for empty beverage containers collected in Canada, including discussion of the recycling process and end uses for the recycled material.

Aluminum Cans

Cans are the most common beverage containers in Canada. Over 6 billion cans were sold in the country in 2008¹. In each province the aluminum can is the most popular non-refillable beverage container in terms of market share.



The recovery rate for aluminum varies sharply between provinces where they are covered under deposit laws and those where they are collected in the blue box. Ontario and Manitoba are the only provinces where the soft drink can is not covered by a deposit. In these two provinces the recovery rate for non-alcohol cans is approximately 40% and 47% respectively. No other province shows a recovery rate for non-alcohol aluminum cans that is less than 66%.

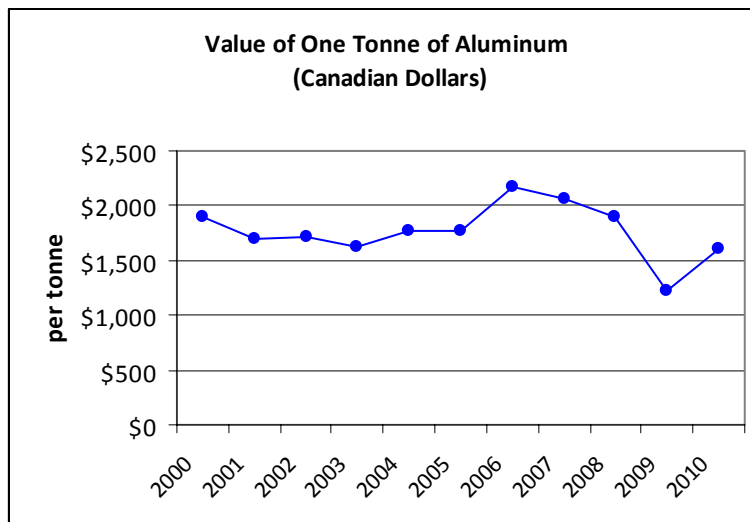
Because aluminum cans have a higher value than other empty beverage containers they are a desirable commodity to the collectors and sellers of recycled materials. Aluminum cans had an average monthly value of about \$1728 per tonne in the three year period for 2007-2009². That represents a per can value of about 2.5 cents.

Aluminum has always been the most valuable beverage container from a material perspective. The following chart shows the value for aluminum from Ontario's municipal system for the years 2000-2010 (2010 figure is an average of the first three months). As is the case with other beverage container materials, the price of aluminum dropped in 2009 and appears to be recovering.

¹ For sales data please contact CM consulting directly at (416) 682-8984 or morawski@ca.inter.net

² Stewardedge Price Sheet, http://www.stewardedge.ca/pdf/pricesheet/2010/03_2010.pdf

Figure 3.1a



Used Beverage Cans (UBCs) are crushed, compacted into biscuits, and transported to aluminum markets where they are melted down and reformed into rolled stock. New aluminum cans are punched out from the sheet at a can production plant and the off-cuts or in-house scraps are all recycled. The whole process of recycling an empty can into a new full can could take as little as 60 days.

Most Canadian UBCs are sent to aluminum smelters in the US, including Kentucky, Tennessee, and Oswego, NY.

Glass Bottles

Calculating the recovery rate for glass beverage containers is extremely challenging where bottles are collected through municipal recycling programs. In these jurisdictions beverage and food container glass is reported together. In addition, recovery rates, on their own, do not account for losses incurred in processing as well as the end use applications which, in the case of glass, have very different environmental benefits.



For example, utilizing recovered glass as road aggregate has a much lower environmental benefit than using the same glass to manufacture new bottles or fibreglass.

The province with the highest recovery rate for non-refillable glass beverage containers is Saskatchewan at 89%. Neighboring Manitoba, with no deposit return regulation on non-refillable glass (outside of imported beer) has the lowest recovery rate in the country at 35%.

A tonne of clear glass from Ontario's municipal systems is worth about \$25 Cdn. The value on glass in other provinces where glass is sorted at the point of collection is higher because the glass is of a higher quality.

The value of glass reflects which method of collection is used. There are two types of glass collection systems in Canada.

The first is to sort the material at the point of collection by colour type (flint, green, brown, or mixed colour). This provides the recycler with a colour specific load which is free of contamination. Colour sorted glass bottle loads may or may not require additional processing depending on their overall quality.

The second method is using multi-material collection systems. The additional handling and truck compaction in these systems result in a significant amount of breakage.

In systems that collect glass with other materials, about 40%-60% of the collected glass is sent to landfill, often used as landfill cover. Another 20% is marketed as glass fines used for low-end applications such as aggregate material or sandblasting base. The remaining 20-40% is usable by either the bottle industry or fibreglass companies. Glass is crushed into small pieces (known as cullet) and used to make new bottles or fibreglass.

Most of the glass collected in western Canada is recycled into fibreglass at a facility in Alberta. In addition, an end-market also exists for paint beading in Saskatchewan. In Manitoba, most glass is used for fill applications in roadways.

In Ontario the majority of wine, spirit and beer glass collected is sold to Owens Illinois for bottle-to-bottle manufacture and Owens Corning for fibreglass production. Most of the glass collected in Ontario's curbside program is used for fibreglass insulation, sand blasting medium and drainage material.

The majority of glass from Atlantic provinces is being shipped to Owens-Illinois in Montreal for bottle-to-bottle recycling.

In northern Canada (Yukon and Northwest Territory) glass is crushed and used as alternative daily cover at landfills or a gravel substitute. Some also ends up as a sandblasting medium.

Refillable Beer Bottles

The refillable beer bottle is the most recovered beverage container in the country. The country-wide recovery rate is approximately 98%. No province shows a rate of less than 90%.

Refillable beer bottles are sent back to brewers for washing and refill. Brewers estimate an average "trippage" rate of 15 times. The term "trippage" refers to the amount of servings one refillable bottle offers. In many countries around the world refillables are more common place for a wide variety of beverages including water, soft-drinks, milk, beer and wine. Glass bottles can achieve trippage rates of 50 times, and thick refillable PET bottles can achieve trippage rates of 20 times.

Scruff marks on the plastic and erosion rings on glass bottles increase with every use. The lower trippage rate on refillable Canadian beer bottles may perhaps be explained by the importance of bottle aesthetics, which is a critical element of successful marketing when competing with one-way beer bottles.



Life-cycle analysis consistently shows that the refillable bottle is far superior to non-refillables in terms of saved energy and avoided pollution.

PET Plastic Bottles

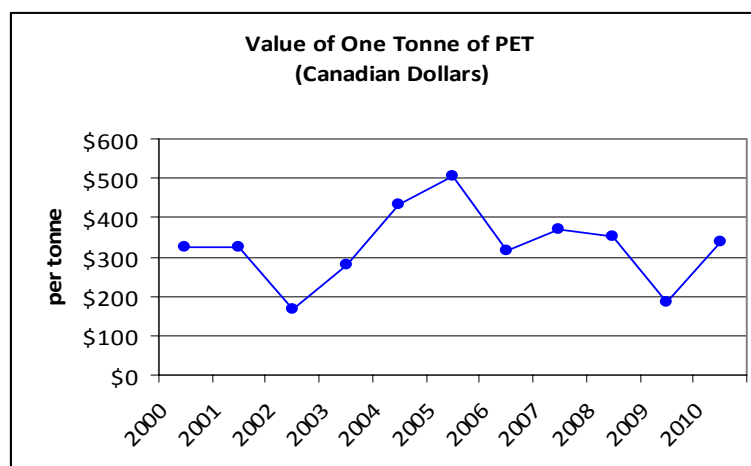
It is challenging to estimate sales and recovery rates for PET in Canada because many provinces report PET within the plastic category as a whole. Plastic in general is the second most common material for beverage containers on a units sold basis.



In provinces that report PET as a category unto itself the recovery rates vary from 40% in Ontario to 95% in Yukon.

The average monthly value for a tonne of mixed PET from Ontario's municipal system was \$302 for the three year period of 2007-2009³. Historically, the price of PET has fluctuated over the last 10 years, hitting lows in 2002 and 2009.

Figure 3.1b



Clear PET containers are baled, shredded and flaked. Plastic flake may be turned into a fibre that can be used to make fleece clothing and carpet underlay, new bottles for detergents, motor oil and other non-food related products. Increasing amounts of PET bottles from deposit return programs are melted down and made into new beverage bottles. Recent data⁴ suggests the North American end-use consumption of recycled PET is for: 43% fibre, 15% strapping, 15% food & beverage bottles, 17% sheet and film, and 6% non-food bottles.

In British Columbia plastic goes to Merlin Plastics in Delta, British Columbia. PET from Saskatchewan and Manitoba goes to US and Canadian processors that flake the material. Some PET from Manitoba is made into Plastic lumber for Railway ties. Ontario and Quebec PET is brokered into the market with varied end-destinations. In the Atlantic Provinces most plastic goes to NovaPET located in Amherst, Nova Scotia. PET from the Territories is shipped to markets in British Columbia and Alberta.

³ http://www.stewardedge.ca/pdf/pricesheet/2010/01_2010.pdf

⁴ National Association for PET Container Resources (NAPCOR) 2008

HDPE Plastic Jugs

HDPE is generally reported as part of a plastics category, which sometimes does, and sometimes does not include PET. In some jurisdictions the reporting of plastics recovery includes non-beverage containers in the category as well. For this reason it is impractical to attempt to report specific recovery rates for HDPE.



Mixed HDPE from Ontario's municipal system was reported to be worth \$472 per tonne as a monthly average for the three year period of 2007-2009⁵.

High Density Polyethylene (HDPE) milk jugs and juice containers are baled, chipped and washed. The clean chipped plastic is melted at high temperatures and formed into pellets. The pellets are used as resin feedstock for the manufacture of non-food containers, plastic formed products, furniture and toys.

HDPE markets are often the same as PET markets and follow similar geographical flow patterns. (See PET Plastic Bottles)

Steel / Bi-Metal Cans

Steel and Bi-Metal cans make up a very small share of the beverage container market. The country's lowest recovery rate for this material is 23.7% in Quebec while the highest rate is achieved in Saskatchewan, where 91.2% of these containers are recovered. Steel cans collected in Ontario's blue boxes were worth \$167 per tonne averaged out monthly over 2007-2009.⁶



Steel beverage containers are crushed, baled and transported to steel markets. There they are melted down with other scrap metal, which can then be used as construction re-bar and other steel products. Steel is generally sold locally to steel brokers in both US and Canada.

Tetra Pak Boxes

Tetra Pak cartons or drink boxes are made up of paper, an aluminum lining and a plastic coating. They are usually reported as part of a greater "Polycoat" or "Aseptic/Gabletop Packaging" category. For this reason it is impossible to quantify sales, returns, and recovery rates specifically for Tetra Paks. For the larger category though, recovery rates are calculated to be over 50% in each of the deposit provinces and less than 20% in Ontario and Manitoba.



Tetra Pak cartons are hydro-pulped and separated into different material types. The resulting paper pulp (~65%) is used to make tissue. The remaining aluminum and plastic mix (~35%) can be used to manufacture durable products like pallets, and paper core plugs, but most end-markets currently do not use the aluminum/ plastic mix for value-added products. Tetra Pak material is sent to paper mills in the U.S., China, and Korea for pulping and tissue production.

⁵ http://www.stewardedge.ca/pdf/pricesheet/2010/01_2010.pdf

⁶ http://www.stewardedge.ca/pdf/pricesheet/2010/01_2010.pdf

While it is true that up until now most of the Tetra Paks used in Canada had to be shipped overseas to recycle the paper component, and that the plastic and aluminum components of Tetra Paks have rarely been recycled, a new recycling process in Quebec may change the end-of-life management of these materials.

Beginning in May 2010, Tetra Pak and Recuperation Mauricie (RCM), along with capital funding companies, will be using post-consumer plastic film, gabletop and aseptic packaging in a new process called “thermokinetic mixing” that combines all of these materials into one homogeneous mix that can be used to create flower pots, pallets, plastic lumber and many other products. The process uses the entire package with no residuals.

RCM estimates that in year one it will use 525 tonnes of gable top and aseptic cartons and 2,100 tonnes of film. In year two, they expect to raise those figures to 1,323 tonnes, and 5,304 tonnes, respectively. In year three, they anticipate increasing those numbers to 2,562 tonnes and 10,251 tonnes, respectively. As production ramps up, they expect to procure empty cartons from the Ontario market as well.

Gabletop Cartons

Gabletop cartons used for juice and milk are made up of “polycoat”, a lightweight, high-grade paperboard sandwiched between two thin layers of polyethylene film. Generally, gabletops are reported as part of a larger category with Tetra Paks. Recovery rates for this category are calculated to be over 50% in each of the deposit provinces and less than 20% in Ontario and Manitoba.



Polycoat is converted into new material by hydropulping, which uses a combination of heat, water and agitation to break down the material to produce pulp or raw fibre. This pulp can be used as feedstock to make new paper products such as corrugated medium (the inner layer of corrugated cardboard), linerboard, household tissue products, and fine paper. The small amount of residual polyethylene can be screened off for use in other plastic and composite materials.

Most Gabletop material is sent to facilities in the U.S, and off-shore to China and Korea for tissue production.

The new process to recycle Tetra Pak in Quebec will mean that some gabletop cartons will be sent to the thermo kinetic plant in Quebec to be recycled along with film and Tetra Pak containers.

Poly Pouch Containers

Poly Pouch containers are made up of composite layers of plastic, including low density polyethylene, with aluminum foil. The technical description is PET/ink/adhesive/aluminum foil adhesive with LLDPE sealant. These pouches are a small portion of the beverage container market today but are rapidly becoming more popular because they are seen to have a small environmental footprint.



Because the pouches are made from very little material they take up little space in landfill. They are also extremely lightweight for the amount of material they can hold so the carbon footprint of

transportation is comparatively small. According to a recent study by the Packaging Machinery Manufacturers Institute (PMMI) trade association, “when compared to bottles, pouches require a fraction of the shipping infrastructure, which saves on fuel. The beverage volume transported in a truckload of quart-sized pouches would require nine trucks of glass or plastic bottles.”⁷

Because of these environmental benefits, products sold in these packages receive very high marks on environmental scorecards used by some retailers to decide which products to sell. The desirability of this type of packaging for retailers is why the PMMI expects pouches to show the greatest growth as packaging over the next decade.⁸

Traditional recycling methods via the aluminum or plastics recycling markets are not available, as this material is a contaminant in both processes. Several recycling agents – primarily in provinces that mandate that all beverage containers get recycled (versus landfill or incineration) – are currently sourcing a permanent market for recycling this material. Test batches are being sent to North America, Europe and Asia.

Cups

There is another type of container that is used almost exclusively away from home and is not covered by deposit return regulation in any of Canada’s provinces or territories. Most of the beverage container regulations define the beverage container as one that is “sealed by the manufacturer”, which exempts cups that contain coffee, tea, juice, or soft drinks, etc. that are sold at quick-serve establishments or events such as festivals and sporting matches. The polystyrene or paper based, plastic lined coffee cup are the most common and most debated of these cups.



With the launch of Ontario and Quebec’s industry-funded municipal recycling program, retailers or brandowners of these cups are required to pay levies to support municipal recycling of these containers. However, while industry is financially supporting recycling via municipal programs, very few programs are actually accepting and recycling these materials.

The idea of using a tax or a bylaw to try to keep disposable coffee cups from going to landfill has been considered by some city councilors in Vancouver⁹ and in Toronto. In 2008, an attempt was made by some on Toronto city council to apply a 25-30 cent tax on disposable coffee cups. The proposal was stalled by intense opposition from the coffee retail lobby.

In December 2009, A Halifax Regional Chairs committee dedicated to minimizing the production of solid waste has recommended to the Nova Scotia Environment Minister that a levy be charged on disposable cups.¹⁰ The committee is made up of elected municipal officials and co-coordinators from each of the provinces seven regions. The proposal supported a levy on the cups that would raise revenue for the municipalities to run their recycling programs.

⁷ Pouches get popular, article from Canadian Plastics, <http://www.canplastics.com/issues/story.aspx?aid=1000368256>

⁸ Pouches get popular, article from Canadian Plastics, <http://www.canplastics.com/issues/story.aspx?aid=1000368256>

⁹ <http://www.canada.com/theprovince/news/story.html?id=22000024-1b7d-4359-85bd-79506ffbbde7>

¹⁰ <http://www.theadvance.ca/Living/Food/2010-04-11/article-997452/Tim-Hortons-would-not-support-cup-tax-or-surcharge/1>

Cups are recyclable

Polystyrene cups are recyclable where polystyrene recycling facilities exist. There is a challenge with recycling polystyrene cups. The associated cost of shipping, given they have a large volume to weight ratio is very prohibitive.

In general, these cups are commingled with other expanded polystyrene recycling programs and shipped to facilities in Ontario, the US, and overseas.

The primary polystyrene recycling plant in Ontario, the CPRA (Canadian Polystyrene Recycling Association) in Mississauga has recently closed and shipped the recycling part of their business to a facility in Port Hope. The Port Hope facility will not be accepting and processing “dirty” polystyrene. This could mean that foam coffee cups will not be accepted and recycled in Ontario any more.

Paper cups can be recycled by some paper mills either on their own, mixed with gabletop containers or mixed-in with boxboard material. Depending on the end-use (usually tissue) the yield rate¹¹ is about 80%¹². A homogeneous mix of cups with low levels of contamination provides the greatest yield rate.

Wax coated cups used for cold beverages provide greater challenges with recycling and composting because of the wax.

Cups are compostable

Paper cups can also be composted. Cups with a poly-based liner can go into municipal compost. The liner is generally screened out of the final product.

In August 2006, Cereplast, Inc. a maker of proprietary bio-based resins, packaging company MeadWestvasco, and the Solo cup company announced a new biogenic liner incorporating starch and Poly Lactic acid that can withstand heat of 220 degrees that could biodegrade “quickly, completely and safely, without leaving any plastic residue in commercial and municipal composting facilities”.¹³

Are cups being recycled or composted?

Coffee Cup Recycling became a Canadian first on Earth Day, April 22, 2002 when as part of Tim Hortons Anti-Litter Campaign the company announced their joint venture with the Westmorland-Albert Solid Waste Corporation (WASWC), a wet-dry facility in Moncton, NB to reduce litter and recycle used coffee cups.

Tim Hortons placed recycling bins for “hot beverage containers” at the Drive-thrus and inside stores at 25 locations. The WAWSC Compost facility screened out the plastic liner, shredded the remainder and used it as a bulking agent in the compost. Shortly thereafter, WASWC began recycling instead of

¹¹ “Yield rate” refers to the percentage of material that is actually recycled.

¹² Based on a conversation with technical contact at Atlantic Packaging

¹³ Press release from Cereplast, MeadWestvasco, and Solo Cup Company. August 7 2006.

<http://www.solocup.com/pdfs/pressreleases/2006/Cereplast%20Mead%20Solo%20Press%20Release.pdf>

composting the cups, marketing the end product with boxboard and cardboard. In 2004, over 1 million coffee cups were diverted from landfill.¹⁴

In Prince Edward Island the Island Waste Management Corporation (IWMC) accepts paper cups in the green bin program and composts them. They do not accept polystyrene lids.

Many municipalities in Nova Scotia, for example the Municipality of the District of Lunenburg, encourage citizens to put the coffee cup into a green cart to be collected and processed with compost. They request that the lid go in with recyclable plastics. The largest city in Nova Scotia, Halifax does not compost or recycle coffee cups¹⁵. The city's recycling sorting guide asks that they go into the garbage.¹⁶

Several Ontario municipalities also promote placing hot beverage cups in green bin or blue boxes for recycling or composting. These communities include Owen Sound, Essex-Windsor County, Hamilton, and Halton Region, to name a few.

Tim Hortons now has cup recycling program in 400 outlets in Canada, mostly in Ontario and Atlantic provinces. They plan to expand chain-wide eventually.¹⁷

Starbucks provides a description of their efforts on their website. They plan to make 100% of their paper and plastic cups recyclable; and have front-of-the-house recycling available in all locations by 2015.¹⁸

¹⁴ <http://www.westmorlandalbert.com/english/index.html>

¹⁵ <http://www.cbc.ca/consumer/story/2010/03/08/ns-coffeecups-jat.html>

¹⁶ <http://www.halifax.ca/wrms/documents/WhatGoesWhere09.pdf>

¹⁷ <http://www.timhortons.com/ca/pdf/2009CSR.pdf>

¹⁸ <http://www.starbucks.ca/en-ca/Social+Responsibility/Enviornmental+Stewardship.htm>

3.2 Use of Recycled Content in Beverage Containers

While the *Who Pays What* report concentrates on the recovery of used beverage containers it is important to take note of the fact that some of these containers contain recycled content before they are filled and delivered.

It is estimated that manufacturing glass from recycled glass uses 35% less energy than making glass from raw materials. Using recycled aluminum instead of virgin ore to make a new can requires 95% less energy. The saving derived from using recycled PET to make a new bottle is the 30% less energy used, equivalent to about 11 barrels of oil per tonne of plastic produced.¹⁹

Glass

Bottle-to-bottle recycling is the most efficient use for recycled glass beverage containers. Today's glass beverage containers in Canada have about 50% recycled content. The beer industry standard bottle has a higher content rate of 60%-65%. Globally the recycled content percentage is lower than in Canada because there is simply less recycled glass available to bottle manufacturers. According to a study by Owens-Illinois, manufacturer of glass containers for food and beverages, the demand for quality cullet in North America exceeds the current availability by approximately 1 million tons.²⁰

PET

The leading beverage manufacturers use a small percentage of recycled PET in their PET bottles, and have made commitments to increase the percentage over the next few years. Much of the recycled PET available to manufacturers is going into other, non-beverage related products which affects supply available for bottle-to-bottle recycling.

Aluminum

A typical aluminum can in North America is made up of a significant amount of recycled aluminum. The exact amount is difficult to pinpoint because each supplier uses a different amount, and sometimes different standards to define the amount of recycled content in the product.

According to the recent *As You Sow, Waste & Opportunity* report, the average can in the US is made from an industry standard ingot that is 43.1% recycled aluminum.²¹ What is unclear is whether or not that figure includes only aluminum from used beverage cans. According to ISO standards, the recycled aluminum content of a can includes all recycled content, not just that from can-to-can recycling. By these standards, Evermore Recycling, a new, independent company formed by Novelis and Alcoa for the procurement of used beverage cans, estimates that most cans today contain approximately 67% recycled aluminum.

¹⁹ *Waste & Opportunity, US Beverage Container Recycling Scorecard and Report, 2008. As You Sow.*

<http://www.asyousow.org/publications/2008/WasteAndOpportunity2008.pdf>

²⁰ http://wasteage.com/Recycling_And_Processing/glass-recycled-content-goal-200905/index1.html

²¹ *Waste & Opportunity, US Beverage Container Recycling Scorecard and Report, 2008. As You Sow.*

<http://www.asyousow.org/publications/2008/WasteAndOpportunity2008.pdf>

PART 4 - FINANCING

4.1 Consumer Fees

In many deposit return programs, the beverage industry pays for the bulk of the system costs. In Canada, however, programs have evolved in a way to minimize or eliminate the industry's financial obligation, and pass it on to their customers in the form of a front-end fee or a back-end fee. Currently in Canada, there are several different examples of consumer-based fees that are charged to beverage consumers and used to finance the collection systems.



Container Recycling Fee (CRF)

The CRF is currently being charged in British Columbia and Alberta. It represents a portion of the net cost per unit. The Container Recycling Fee varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. The fees range from no fee to \$0.10 per unit depending on the size and material used for the container. Some containers, like drink pouches and gabletop containers, do not carry a fee because they generate higher revenue from unredeemed deposits, due to lower collection rates.

Manitoba's new (April 1, 2010) CRF is a 2-cent per unit sold fee which will be pooled and used to finance municipal and away-from-home recycling initiatives.

In all cases, the CRF is paid by beverage distributors and passed through to consumers at retail. Fees have no relationship to the environmental profile of the container type, and will fluctuate annually based on the actual system costs.

Environmental Handling Charge (EHC)

Currently being charged in Saskatchewan, the EHC is charged on every non-refillable beverage sold. The funds are collected by the provincial government and used to pay for the operation of the program. The EHCs range from \$0.03 - \$0.07 per unit sold depending on the size and material used for the container. The EHC usually generates far more revenue than needed to fund the system. Excess funds are put into Provincial general revenues.

Half-Back / Recycling Fund Fee (RFF) / Container Handling Fee (CHF)

The Half-Back system is being used in Nova Scotia, New Brunswick, Newfoundland and Prince Edward Island. A Half-Back represents half of the deposit paid on a non-refillable beverage container. The half-back is charged upon redemption, when only half of the deposit is redeemed. Currently being charged in Yukon and Northwest Territory, the Recycling Fund Fee (RFF) and Container Handling Fee (CHF) are modeled after the half-back by offering only a portion of the initial deposit as the refund. In the case of Yukon, 5-cents is refunded on a 10-cent deposit; and 25-cents on a 35-cent deposit. In Northwest Territory, 10-cents is refunded on a 15 or 20-cent deposit, and 25-cents is refunded on a 35-cent deposit. In both cases surplus revenues are placed into a special fund which is kept separate from general revenues.

Funds are used to pay for the operation of the program. These schemes always generate far more revenue than needed to fund the system. Excess funds are used to subsidize the municipal curbside recycling program and/or other provincial environmental initiatives.

Table 4.1a

| Consumer Fees in Cents per Unit Sold (as of April 2010) | | | | | | | | | | | | |
|---|-----|-----|-----|-----|----|----|-----------|-----------|-----------|-----------|-----|------|
| Province | BC | AB | SK | MB | ON | QC | NS | NB | NF | PEI | YK | NWT* |
| Type of Fee | CRF | CRF | EHC | CRF | - | - | Half-Back | Half-Back | Half-Back | Half-Back | RFF | CHF* |
| Aluminum Cans | 2 | 0 | 5 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| PET up to and including 1L | 4 | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| PET over 1L | 5 | 6 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| PVC or HDPE up to and including 1L | 4 | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| PVC or HDPE over 1L | 5 | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| HDPE Milk up to and including 1L | | 3 | | | | | | | | | | 5 |
| HDPE Milk over 1L | | 5 | | | | | | | | | | 10 |
| Plastic up to and including 1L | | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Plastic over 1L | | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Polystyrene Cups (with sealed foil lid) | 4 | 1 | | 2 | | | 5 | 5 | 3 | 5 | | |
| Polypropylene up to and including 1L | 4 | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Polypropylene over 1L | 5 | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Pouch up to and including 1L | 0 | 0 | | 2 | | | 5 | 5 | 3 | 5 | | 5 |
| Glass up to and including 1L | 10 | 6 | 7 | 2 | | | 5 | 5 | 3 | 5 | 5 | 10 |
| Glass over 1L | 10 | 9 | 7 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Drink box up to and including 500ml | 0 | 2 | 3 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Drink box 501ml to 1L | 4 | 2 | 3 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Drink box over 1L | 0 | 2 | 3 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Gabletop up to and including 500ml | 0 | 0 | 3 | 2 | | | 5 | 5 | 3 | 5 | | 5 |
| Gabletop 501ml to 1L | 0 | 0 | 3 | 2 | | | 5 | 5 | 3 | 5 | | 5 |
| Gabletop over 1L | 0 | 0 | 3 | 2 | | | 5 | 5 | 3 | 5 | | 10 |
| Gabletop Milk up to and including 1L | | 0 | | | | | | | | | | 5 |
| Gabletop Milk over 1L | | 0 | | | | | | | | | | 10 |
| Bi-metal up to and including 1L | 0 | 6 | 5 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Bi-metal over 1L | 0 | 0 | 5 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Bag-in-the-Box over 1L | 0 | 0 | | 2 | | | 5 | 5 | 3 | 5 | | 10 |
| Wine/Spirits under 500ml | | | | | | | 5 | 5 | 10 | 5 | 5 | 10 |
| Wine/Spirits equal to or greater than 500ml | | | | | | | 10 | 10 | 10 | 10 | 10 | 10 |



category not applicable
material covered under another category

* In NWT, the 1 litre container is generally included with the over 1 litre containers.

Historic Consumer Fees

Consumer fees have remained constant in all but two provinces in Canada. Only British Columbia and Alberta have changed rates of fees in the reporting period of 2003 – 2010. The reason only these provinces have fluctuating rates is that these are the only provinces where consumer fees are charged to finance the deposit program and not other environmental programs, as is the case with most consumer fees.

Rates will change for a variety of reasons, for example, fluctuations in fees may be caused by a drop in the revenue from materials, forcing the rates to go up, or the cost of recovery may go up, forcing rates to go up. Rates may go down if costs drop or if the value of unredeemed deposits increases due to a decline in recovery.

Table 4.1b provides a historical perspective on consumer fees, for selected materials, in the programs which have them.

Table 4.1b

| Historic Consumer Fees 2003-2010 | | | | | | | | | | |
|----------------------------------|----|----|----|----|----|----|----|-----|-----|-----|
| Aluminum cans | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 0 | 0 | 5 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 0 | 0 | 5 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 0 | 0 | 5 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 2 | 0 | 5 | 2 | 5 | 5 | 3 | 5 | 5 | 5 |
| PET over 1 litre | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 4 | 7 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 4 | 2 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 3 | 3 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 5 | 6 | 6 | 2 | 5 | 5 | 3 | 5 | 10 | 10 |
| PET under 1 litre | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 1 | 3 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 1 | 1 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 3 | 2 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 4 | 2 | 6 | 2 | 5 | 5 | 3 | 5 | 5 | 5 |
| Glass 0-500 ml | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 3 | 5 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 4 | 5 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 5 | 3 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 10 | 6 | 7 | 2 | 5 | 5 | 3 | 5 | 5 | 10 |
| Glass over 1 litre | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 5 | 8 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 5 | 7 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 5 | 4 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 10 | 9 | 7 | 2 | 5 | 5 | 3 | 5 | 10 | 10 |

The following charts show fluctuations of consumer fees in British Columbia and Alberta for selected materials.

Figure 4.1a

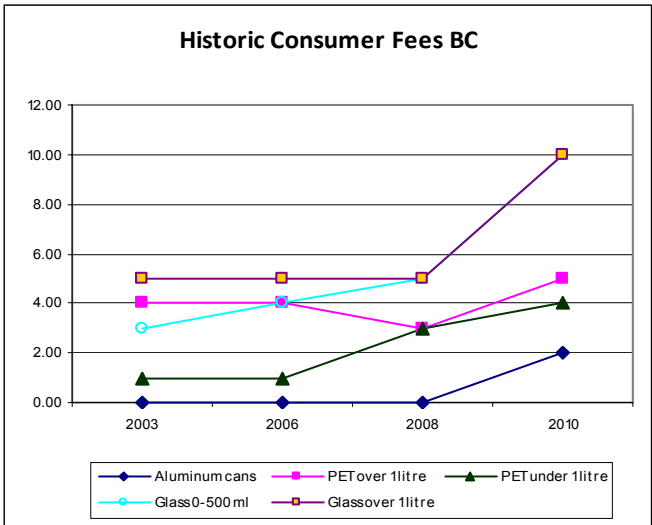
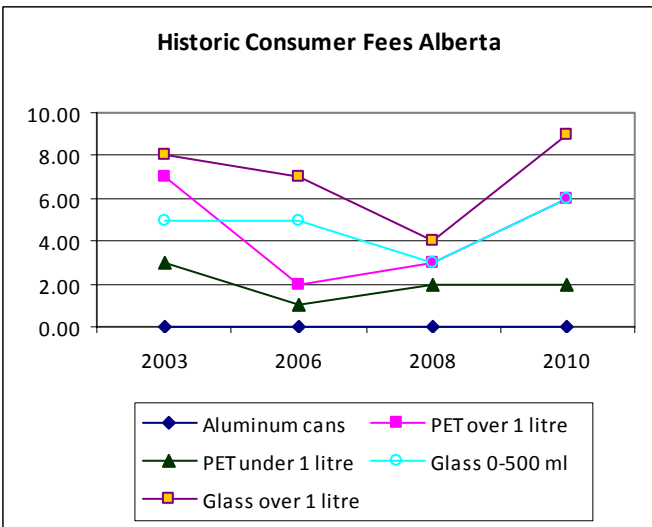


Figure 4.1b



4.2 Deposit Levels (as of March 1, 2010)

In provinces where deposit return systems exist, deposits are paid on beverage containers at the point of purchase. Generally they are indicated separately on the sales receipt. Consumers receive a full refund if they return the container to the appropriate collection centre (retail or depot).

In some jurisdictions for certain containers depots keep part of the refund as their handling fee, thus reducing the refund for consumers. In the Northern and Atlantic Provinces only a portion of the deposit is refunded when a non-refillable container is returned. The remaining half deposit is used to pay for the system and subsidize other provincial environmental initiatives. (Note: In NFL, 5-cents are refunded on an 8-cent deposit.)

Past versions of this report have shown only the deposit levels. Now *Who Pays What* is presenting this chart showing the deposit level and the refunded portion of that deposit.

Table 4.2

Deposit/Refund Levels by Province

| DEPOSIT / REFUND | BC | AB | SK | MB | ON | QC | NS | NB | NF | PEI | YK | NWT |
|--|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Container Type | In Cents CAN\$ | | | | | | | | | | | |
| Containers up to 1L | 5/5 | 10/10 | | | | | | | | | | |
| Containers over 1L | 20/20 | 25/25 | | | | | | | | | | |
| Carbonated beverage containers | | | | | | 5/5 | | | | | | |
| Non-alcohol | | | | | | | 10/5 | 10/5 | 8/5 | 10/5 | | |
| Metal cans under 1L | | | 10/10 | | | | | | | | 10/5 | 15/10 |
| Metal cans 1L and up | | | 20/20 | | | | | | | | 35/25 | 20/10 |
| Milk up to 1L | | 10/10 | | | | | | | | | | 15/10 |
| Milk over 1 L | | 25/25 | | | | | | | | | | 35/25 |
| Glass Bottles up to 300ml | | | 10/10 | | | | | | | | 10/5 | 20/10 |
| Glass Bottles 301ml-999ml | | | 20/20 | | | | | | | | 10/5 | 20/10 |
| Glass Bottles 1L and up | | | 40/40 | | | | | | | | 35/25 | 20/10 |
| Plastic bottles less than 1L | | | 10/10 | | | | | | | | 10/5 | 15/10 |
| Plastic bottles 1L and up | | | 20/20 | | | | | | | | 35/25 | 20/10 |
| Juice box and Gabletop | | | 5/5 | | | | | | | | | 15/10 |
| TetraPak up to 1L | | | | | | | | | | | 10/5 | |
| TetraPak 1 L and up | | | | | | | | | | | 35/25 | |
| Wine & Spirit Containers up to 500ml | 10/10 | 10/10 | | | | | 10/5 | 10/5 | 20/10 | 10/5 | 15/10 | 35/25 |
| Wine & Spirit Containers 501ml to 1L | 10/10 | 10/10 | | | | | 20/10 | 20/10 | 20/10 | 20/10 | 35/25 | 35/25 |
| Wine & Spirit Containers over 1L | 20/20 | 25/25 | | | | | 20/10 | 20/10 | 20/10 | 20/10 | 35/25 | 35/25 |
| Wine & Spirit Containers up to 630ml | | | | | 10/10 | | | | | | | |
| Wine and Spirit Containers over 630ml | | | | | 20/20 | | | | | | | |
| Beer cans & bottles up to 1L | 10/10 | 10/10 | | 10/10 | 10/10 | | 10/5 | 10/5 | 10/5 | 10/5 | 10/5 | |
| Beer cans & bottles over 1L | 20/20 | 25/25 | | 20/20 | 20/20 | | 20/10 | 20/10 | 20/10 | 20/10 | 10/5 | |
| Beer cans up to 450ml (In QC) | | | | | | 5/5 | | | | | | |
| Beer bottles (glass) 450ml and over (QC) | | | | | | 10/10 | | | | | | |
| Beer containers over 450ml (QC) | | | | | | 20/20 | | | | | | |
| Refillable beer bottles | 10/10 | 10/10 | 10/4* | 10/10 | 10/10 | 10/10 | 10/10 | 10/10 | 10/5* | 10/10 | 10/10 | 10/10 |

* In SK 6-cents and NF 5-cents, is retained by bottle depots in lieu of an official handling fee.

4.3 Container Handling Fees

A handling fee is the fee charged per unit collected by the collection agent (depot or retail). In general, the same handling fee is charged for all container types, however in western provinces (BC and AB) handling fees range from a low of 3-cents (for aluminum cans in BC) to a high of 12-cents (for bag-in-the-box containers in AB). The varied fees are based on the cost of handling and storage. Handling fees in some provinces have and continue to experience small increases year after year. In British Columbia, handling fees for grocers are privately negotiated and are proprietary. The handling fees presented below for BC represent those fees awarded to depots only.

Table 4.3a presents handling fees by province and container type, as of March, 2010. Shaded regions represent container categories that are not applicable to that particular province in terms of categorization.

Historic Handling Fees

In the Atlantic provinces that use handling fees (NS, NB, & NFL) the rates have increased slightly from 2004-2008. These provinces use the same fee regardless of container type. NS fees have gone from 3.1 cents to 3.63 cents. NB fees have gone from 3.3 cents to 3.66 cents and NFL fees have gone from 3.0 cents to 3.5 cents.

Quebec's handling fee has remained constant at 2 cents per container regardless of material type.

British Columbia and Alberta set different fees for each material. In BC fees have gone up for many materials but the average fee per unit has gone from 4.42 cents in 2004 to 4.66 cents in 2006 and back down to 4.48 cents for 2008. In Alberta, fees have seen a drop for most materials and a corresponding drop in average fee paid per unit. The average rate has dropped from 4.48 cents per unit to 4.05 cents per unit for 2008.

Figure 4.3

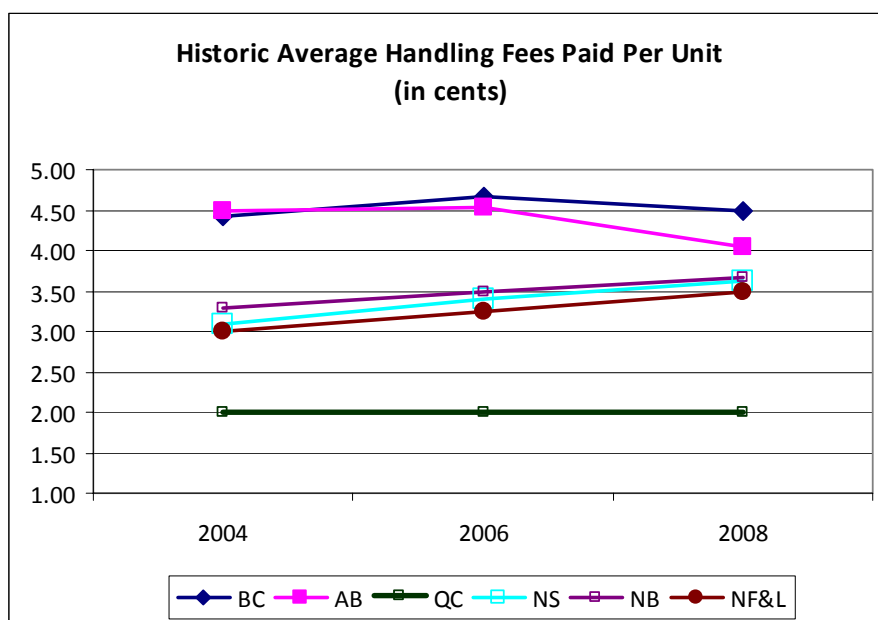


Table 4.3a

| Handling fees in cents per unit recovered (as of March 1 2010) | | | | | | | | | | | |
|--|----------|------|--|----|-----|-------|-------|-------|-------|-----|-----|
| Province | BC | AB | SK[3] | MB | QC | NS | NB | NF | PEI | YK | NWT |
| Aluminum Cans | 3 | 3.02 | | | 2 | 3.99 | 3.83 | 3.75 | 3.74 | 2.5 | 2.2 |
| PET up to 1L | 4.5 | 3.94 | | | 2 | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| PET over 1L | 7 | 7.23 | | | 2 | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| PVC up to 1L | 4.5 | 7 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| PVC over 1L | 7 | 12 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| HDPE up to 1L | 4.5 | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| HDPE over 1L | 7 | 12 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| Polypropylene up to 1 L | 4.5 | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Polypropylene over 1 L | 7 | 12 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| Sealed Polystyrene Cups | 4 | 6 | | | | | | | | | |
| Polystyrene up to 1L | 4.5 | 8 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Polystyrene over 1L | 7 | 8 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| Pouch (Up to 1L in AL) | 4 | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Plastic up to 500ml | 4.5 | | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Plastic 501ml to 1L | 4.5 | | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Plastic over 1L | 7 | | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| Glass bottles up to 1L | 6 | 5.08 | | | 2 | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 3.5 |
| Glass bottles over 1L | 7 | 11 | | | 2 | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 3.5 |
| Drink box up to 500ml | 4.5 | 3.81 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Drink box 501ml to 1L | 5.5 | 3.81 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Drink box over 1L | 5.5 | 10 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| Gabletop up to 1L | 6 | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | 2.2 |
| Gabletop over 1L | 10 | 10 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | 4.5 |
| Bag in the Box over 1L | 10 | 12 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | 3.5 |
| Bi-metal up to 1L | 4.5 | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 2.2 |
| Bi-metal over 1L | 10 | 10 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 7.5 | 4.5 |
| Imported beer bottles | 4.5 | 4.87 | | | | 3.99 | 3.83 | 3.75 | 3.74 | 4.0 | 3.5 |
| Liquor and wine ceramic | | 12 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | |
| Sleeman bottles | | 4.12 | | | | 3.0 | 3.83 | 3.75 | 3.74 | | |
| Big Rock Bottles | | 3.87 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | |
| Moosehead Green Bottle | | | | | | 2.568 | | | | | |
| Import beer up to 1L | | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | |
| Import beer cans bi-metal | | 6 | | | | 3.99 | 3.83 | 3.75 | 3.74 | | |
| Refillable Beer (ISB) | [1] | 3.96 | 2,6 [4] | | 0.5 | 2.735 | 2.735 | 5 [4] | 2.735 | 2.5 | |
| Milk up to 1 litre | | | | | | | | | | | 2.0 |
| Milk over 1 litre | | | | | | | | | | | 3.5 |
| Milk jugs | | | \$350/t | | | \$417 | | | | | |
| Milk cartons | [2]~3.75 | | \$150/t | | | tonne | | | | | |
| | | | Container included in another category | | | | | | | | |
| | | | Category not applicable | | | | | | | | |

[1] In BC bottle depots independently negotiate handling fees directly with the beer industry. The average rate is about 29-cents/doz or 2.42 - cents/bottle

[2] About 144 Depots in BC are paid a handling fee for collecting milk jugs and carton. They are paid \$1.75 per bag for jugs and \$2.25 per bag for cartons. The fee shown in the table is based on 60 units per bag.

[3] Saskatchewan does not charge handling fees. SARCAN depots are paid a contracted rate per year, which is generated through the Environmental Handling Charge (EHC).

[4] In Saskatchewan and Newfoundland a handling fee charged on refillable beer is charged at the back-end from the refund. In SK it is 6 cents at Sarcana depots and 2 cents at SLGA stores who also receive an additional subsidy of 2.6 cents per ISB bottle from BDL.

4.4 Ontario, Quebec & Manitoba Beverage Container Packaging Fees

Ontario, Quebec and Manitoba have legislation in place that mandates that a percentage of funding for municipal recycling come from industry. The Ontario program began funding municipalities at a rate of 50% in February 2003 and the Quebec program, also at 50% in March 2005.

Manitoba's program began in April of 2010 at a rate of 80% funding for municipal recycling programs. The program in Manitoba also includes financing the recovery of beverage containers consumed away from home.

While Manitoba is following a similar model to Ontario, for beverage containers, funding will be different. More specifically, most non-alcohol beverage distributors will continue submitting the 2-cent Container Recycling fee (formally called the "beverage levy") which is passed-through to consumers in most cases. These funds will be used to finance 80% of the municipal recycling costs, in addition to an away-from-home recycling strategy.

In Ontario and Quebec, targeted industries are brand owners or first importers of packaging and paper, and publishers of printed paper. In Ontario target materials are "packaging" and "printed papers", and in Quebec they are "containers and packaging", "printed matter" and "written media".

In Ontario, through a municipal data call, both cost and tonnage information is collected. From that data call, Stewardship Ontario (the Industry Funding Organization representing affected stewards) determines who pays how much. The formula used to determine the fees utilizes a combination of factors which include the recovery rates, net cost and a penalization factor for lower performing materials.

Each year, as the costs and tonnages change, Stewardship Ontario submits a new fee schedule which requires approval from the Minister of Environment. In 2008-2009, \$60M was distributed to municipalities, plus more than \$7M, which was used for research, market, and program management costs.

In Quebec, because a data call process is not yet in place, negotiated net costs were determined by both the Association of Municipalities and Eco-Entreprises Quebec (EEQ) for fiscal 2008 to be \$124 M. The total industry contribution for 2008 is: \$49.6M. (Note, there is another contribution for printed paper which is "in-kind" and therefore not reported as a financial contribution).

The following chart showing packaging fees also includes Manitoba, however it should be noted that these fees apply only to those beverages that are not part of the 2-cent CRF program. For this reason, Manitoba fees are highlighted in grey.

The following are the fee schedules for 2010 (based on operational costs from 2008).

Table 4.4a 2010 Fee Schedules

| Stewardship Packaging and Printed Paper Levies in cents per kg | | | |
|---|----------------|---------------|-----------------|
| Package Type | Ontario | Quebec | Manitoba |
| Aluminum | -2.2 | 4.49 | -0.204 |
| PET | 12.98 | 10.27 | 17.65 |
| HDPE | 12.49 | 10.56 | 11.6 |
| Other plastics | 24.65 | 15.2 | 28.70 |
| Glass - clear | 3.8 | 3.68 | 5.81 |
| Glass - coloured | 4.1 | 3.69 | 5.81 |
| Steel / bi-metal | 5.54 | 5.65 | 9.04 |
| Tetra Pak/Gabletop | 19.65 | 10.71 | 22.92 |

All containers will carry a fee with exception of aluminum in Ontario, which will accrue a credit against other levies charged to a brand owner. If the credit exceeds a brand owner's total stewardship fees, funds will not be paid to that brand owner. In addition, a credit cannot be carried over to the next fiscal year.

The new 2-cent per unit Container Recycling Fee (CRF) in Manitoba will replace these fees for non-alcohol beverage containers only.

In Quebec, most aluminum cans are part of the deposit return program and therefore exempt from the municipal funding program. This is why aluminum in Quebec carries a fee unlike in Ontario and Manitoba.

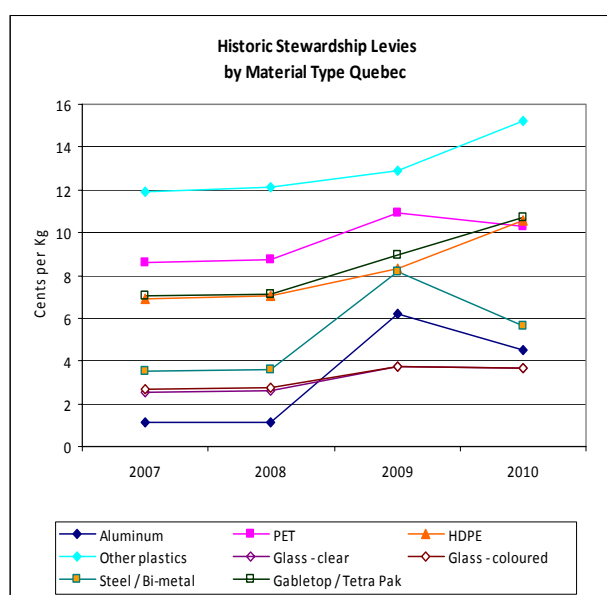
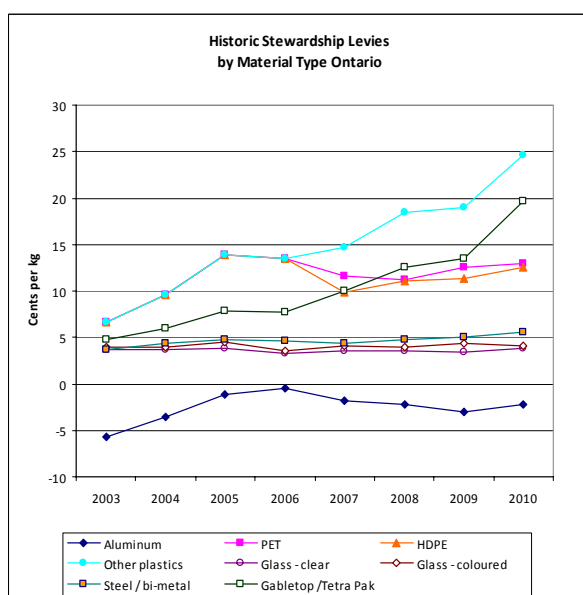
Because levies are based on different material types, per container fees can be calculated when the weight of each unit is measured. The following table (4.4b) represents an expression of the 2008 fee schedule by container type for specific volume units for Ontario and Quebec only.

Table 4.4b

| Expression of levies by beverage container type in Canadian CENTS per unit sold | | | |
|--|-----------------------|---------|--------|
| Beverage Container | Weight in Grams | Ontario | Quebec |
| 2-litre gabletop | 63 | 0.79 | 0.45 |
| 1-litre gabletop | 41 | 0.51 | 0.29 |
| 250ml Tetra pak | 10 | 0.13 | 0.07 |
| 1.36 litre steel can | 153 | 0.73 | 0.55 |
| 473ml clear glass bottle | 228 | 0.80 | 0.59 |
| 750ml clear glass bottle | 335 | 1.18 | 0.87 |
| 2-litre PET bottle | 58 | 0.65 | 0.51 |
| 600ml PET bottle | 30 | 0.34 | 0.26 |
| 4-litre HDPE water bottle | 65 | 0.72 | 0.46 |
| outer milk bag - LDPE film | 8 | 0.15 | 0.10 |
| 355ml aluminum can | 14 | -0.03 | 0.02 |
| weights are based on Stewardship Ontario Blue Box Program Plan 2003 | | | |

Figure 4.4a and 4.4b show historical fluctuations in levy for Ontario and Quebec

Figures 4.4a and 4.4b



4.5 System Costs and Revenue

In order to determine the costs of deposit return programs in Canada, income statements from the various operating agencies must be reviewed²². In general, the income includes: sales from empty containers sold to the recycler; unredeemed deposit revenue; and additional revenue usually from a consumer fee charge up front or at the back-end (at redemption).



The Role of Material Revenue

As mentioned above, material revenue plays an important role in helping to off-set the gross costs of the system. For each program this revenue varies based on the level of performance and the types of containers that are being recovered and their respective value. In Quebec for example, program revenue for the deposit return system for beer and soft drinks is quite high because those beverages are sold primarily in aluminum cans and PET bottles, both of which have a relatively high resale value. Therefore in Quebec, revenue accounts for about 44% of program costs. In British Columbia and Alberta's deposit systems, which manage all material container types (excluding domestic beer), program revenue generated by material sales is relatively less at about 23% and 30% respectively. In Ontario's deposit return program for wine and spirits the share of revenue as a percentage of costs is lower still, as over 96% of the tonnage of the materials are glass bottles, which are worth significantly less than the materials a typical deposit return programs manage.

Comparing Costs

Comparing the costs on a program to program basis cannot be done unless various program variables are equalized. Program variables include things like performance; level of convenience; economies of scale; population density etc., all impact the cost of the program.

Consider for example the per capita cost of Saskatchewan's program which is about \$14 per person. Saskatchewan has the overall highest performance rate in the country. British Columbia's cost is \$13 per person, whereas Alberta's program is \$11 per person, which may be reflective of its overall lower collection rate in 2008 compared to BC. (Note Alberta's collection rate has increased significantly since the increase in the deposit levels).

Similarly, Prince Edward Island with a tiny population (less than 150,000 people) had a higher per capita cost of \$18 per person.

The Role of Surplus

There are several programs in Canada that use consumer fees like the Environment Handling Charges (EHCs) in Saskatchewan; Half-Back schemes (Atlantic provinces); and consumer fees in the Territories to generate additional revenue. While this revenue may be generated from the beverage container consumer, it does not necessarily mean that it is being used to offset the system costs associated with operating the program that year. These non-system related costs subsidize other provincial programs or contribute to provincial general revenues. For example, in New Brunswick, most of the

²² For operating data, revenues and costs please contact CM consulting directly at (416) 682-8984 or morawski@ca.inter.net
CM Consulting: Who Pays What 2010

half-back revenue generated is placed in the Environmental Trust Fund, which is used for beautification, conservation etc. In Nova Scotia, the majority of half-back revenue is mandated to be distributed to municipalities to help off-set the cost of their waste diversion initiatives. In Saskatchewan and Prince Edward Island, all excess funds accrue to the Provincial Treasury. In the Yukon, funds generated by the RFF go into a recycling fund administered separately from government general revenues and used solely for recycling purposes, In the Northwest Territory; funds generated by the program go into an environment fund that is separate from the government general account.

In the case of excess Container Recycling Fees (CRFs) in British Columbia and Alberta, surplus funds are used to offset the following year's costs. CRFs do not subsidize other programs.

Indirect costs

There may be indirect costs associated with beverage collection programs that impact consumers or municipalities, which are seldom accounted for. These may include: the costs incurred by consumers when driving containers to a depot; costs incurred by municipalities for disposal and litter abatement etc. These costs are not currently part of the *Who Pays What* analysis.

PART 5 WHO PAYS WHAT – ANALYSIS



Past versions of the *Who Pays What* report provided analysis of the costs born by various stakeholders. It represented these costs per unit side by side in a chart for ten provincial programs. Because programs vary so much in terms of costs and their related variables, data did not warrant being presented in a manner which can be used to compare. Rather, what is important in this analysis is the share of financial responsibility rather than the actual cost.

In an effort to provide a clearer picture of program financing, a new approach called *Who Bears the Share* has been developed by CM Consulting. This analysis identifies the share of costs each stakeholder picks up. The share is simply a function of the contribution relative to the total outside funding contribution (not including material revenues).

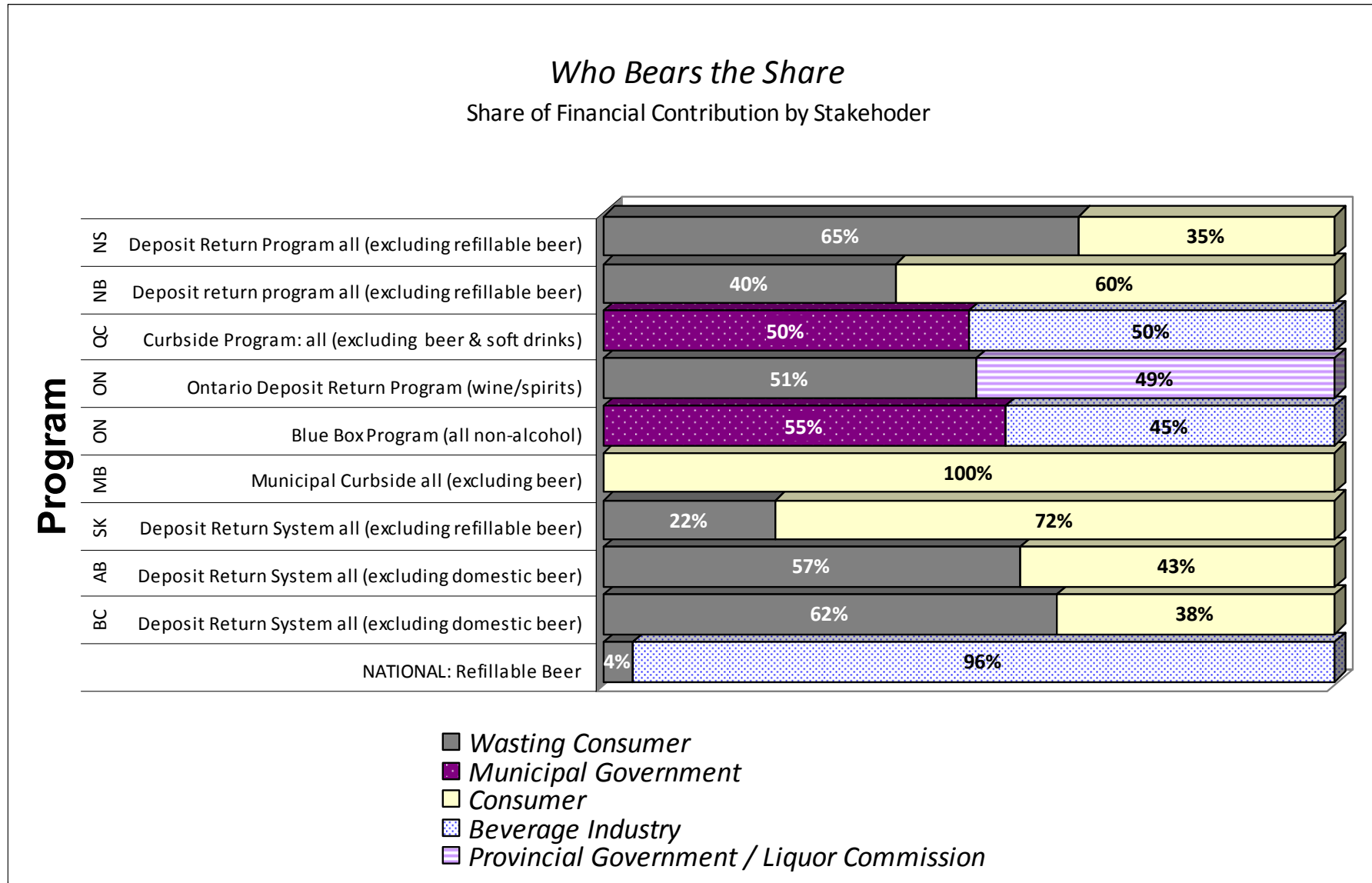
$$\frac{\text{STAKEHOLDER TOTAL CONTRIBUTION (\$)}}{\text{TOTAL PROGRAM FUNDING (\$)}}$$

The analysis provides a view point into the balance of financial responsibility and equity of the system. *Who Pays What* identifies five (5) different stakeholders that can fund the program. They are:

- **Wasting Consumer**
- **Municipal Government**
- **Consumer**
- **Beverage Industry**
- **Provincial Government/Liquor Board**

Each stakeholder brings its own level of responsibility and direct involvement in the beverage container's distribution; sale; point of consumption; recycling; and disposal. Understanding the roles each stakeholder plays in the system and how economic incentives can drive system efficiency and inform policy development. The following pages provide an overview of these stakeholders; their costs; and observations on the fairness of the funding scheme.

Figure 5.1



5.1 Who Bears the Share

Wasting Consumer:

The “wasting consumer” is the consumer that chooses not to redeem their container, likely putting it into a garbage bin where even scavengers are not able to collect and redeem the container. As such, the deposit on this container is ending up being voluntarily forfeited and used to off-set the program costs.



For the wasting consumer, this cost is equal to the value of the deposit, anywhere from 5-cents to 40-cents depending on the program and container type. In general, wasting consumers contribute to a large part of the program revenue. The “cost of wasting” is on average, 6.2-cents per unit in British Columbia; 5.2-cents in Alberta; and more than 10-cents in Saskatchewan and the Atlantic provinces. These average costs are a function of total unredeemed deposit revenue divided by the number of unredeemed units.

$$\frac{\text{TOTAL UNREDEEMED DEPOSITS (\$)}}{\text{TOTAL UNREDEEMED CONTAINER (units)}}$$

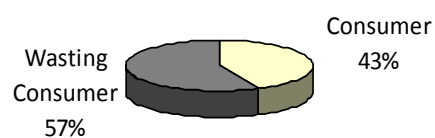
These levels of contribution will vary year-to-year and are dependent on the level of performance. The higher the deposit levels, the higher cost of wasting. When deposit levels are increased, in general performance levels rise. While the number of contributors to unredeemed deposits declines, if deposit levels are increased, the total unredeemed share of revenue will also increase until a higher threshold performance level is reached, after which the unredeemed deposits pool begins to decline. (i.e. at 100% performance levels, unredeemed deposits are \$0.)

The following charts provide a summary of Canadian beverage container collection programs and the share that the wasting consumer bears for program funding.

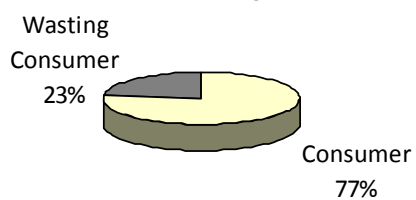
**British Columbia
Deposit Return System
All Containers Excluding Domestic Beer**



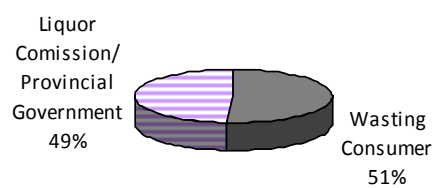
**Alberta
Deposit Return System
All Containers Excluding Domestic Beer**



**Saskatchewan
Deposit Return System
All Containers Excluding Refillable Beer**



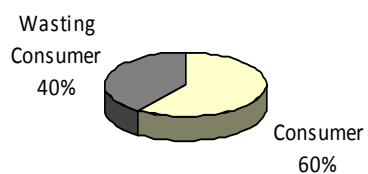
**Ontario
Deposit Return Program
All Alcohol Containers**



**Nova Scotia
Deposit Return Program
All Containers Excluding Refillable Beer**



**New Brunswick
Deposit Return Program
All Containers Excluding Refillable Beer**



Municipal Government:

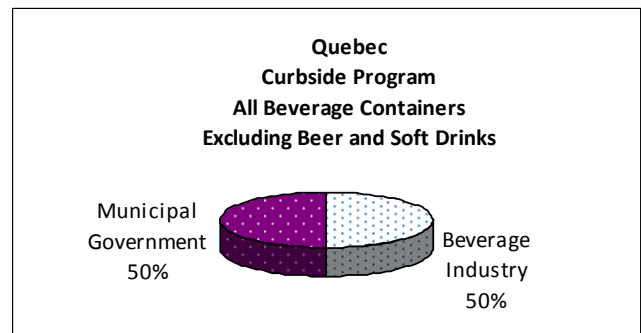
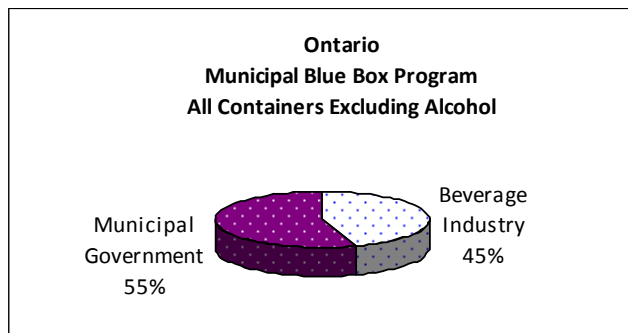
Municipal governments are local governments (towns, counties, cities etc.) responsible for recycling; litter abatement and disposal of residents' waste. These services are financed directly by municipal property taxes/ property owners.



Most agree that it is inappropriate for taxpayers to finance end-of-life management of products and packaging because there is no direct link in terms of incentivizing proper recycling behaviour. The charts below provide an illustration of the municipal share of responsibility in Ontario and Quebec. In both provinces, municipalities cover over half the costs of recycling beverage containers from residential single family and some multi-family residences.

Manitoba is not included here, as the vast majority of costs associated with container recycling program will be funded through the 2-cent Container Recycling Fee (CRF) paid by consumers.

The municipal share in Ontario and Quebec is expected to decline over the next few years as both provinces are poised to shift to 100% industry responsibility.



Consumer:

Over the years, as industry assumes more responsibility for collection programs, they have organized externalized consumer fees which are charged upon purchase by retailers. These fees get pooled and used to help off-set programs costs.

In British Columbia and Alberta, Container Recycling Fees (CRFs) are used as another source of revenue to off-set program costs. In these programs all CRF revenue is used for the program and fees are re-adjusted annually.

In Saskatchewan, the Environmental Handling Charge (EHC) is charged on all beverage sales (except refillable beer) and used to pay for program costs and excess funds are placed into the Province's general revenue.

Manitoba has, and will continue to charge a 2-cent Container Recycling Fee (CRF) which will be used to finance 80% of municipal recycling, plus away-from-home collection.

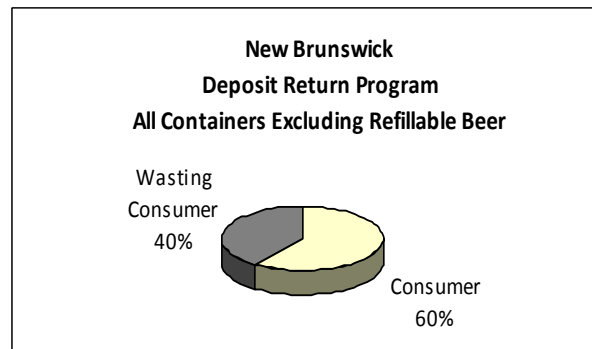
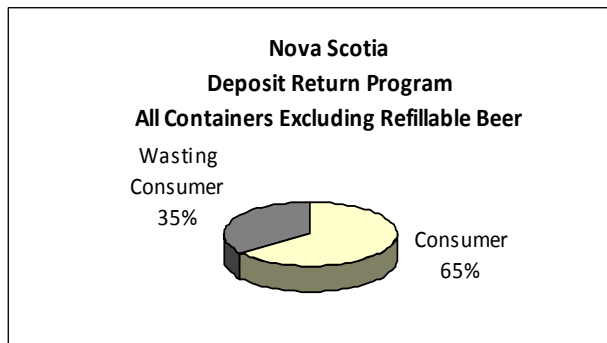
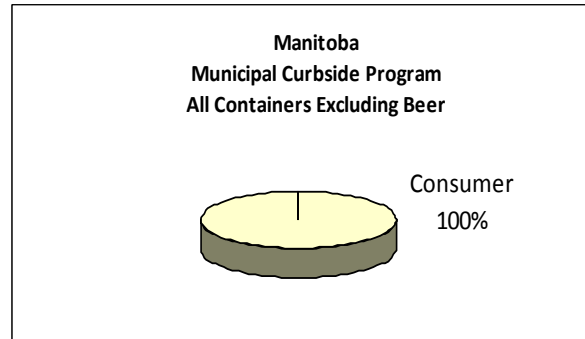
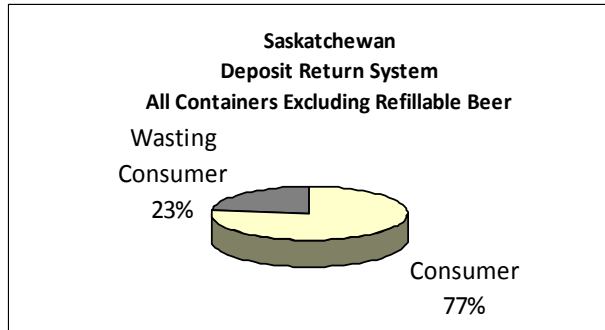
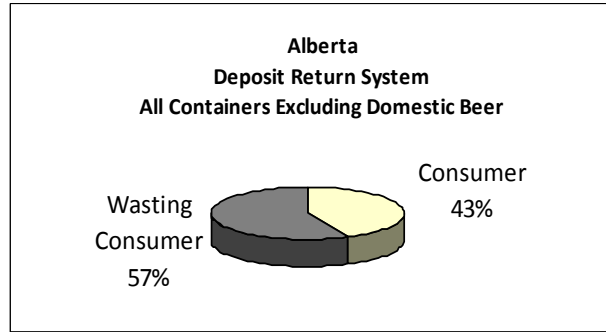
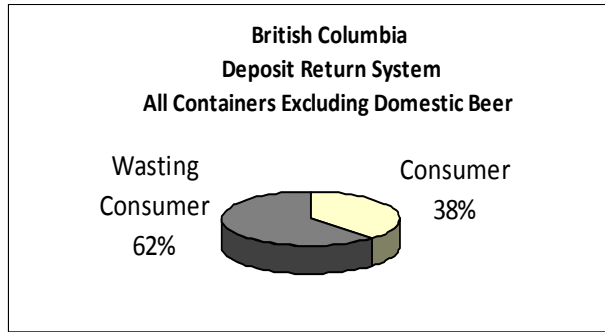
Atlantic provinces and northern territories refund only a portion of the deposit, effectively charging a consumer fee at the point of purchase. Surplus funds are used by government to finance other waste diversion initiatives and environmental programs.

Consumer fees are effectively a user tax. Irrespective of how that consumer chooses to dispose of their container, every consumer pays the same amount. By paying a fee up front, there is no financial incentive to recycle. The average fee paid in British Columbia is 2.4-cents; Alberta 1.1-cents; Saskatchewan 5.3-cents; Manitoba 2-cents; Nova Scotia 5.2-cents; New Brunswick 5.1-cents; and Yukon is 5.6-cents.

These average costs are a function of total fees paid, divided by the number of containers purchased.

$$\frac{\text{TOTAL FEES PAID (\$)}}{\text{TOTAL UNITS PURCHASED (units)}}$$

The following charts provide a summary of programs where consumers help finance the system.

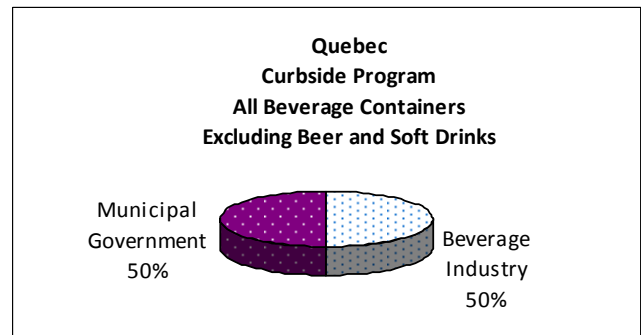
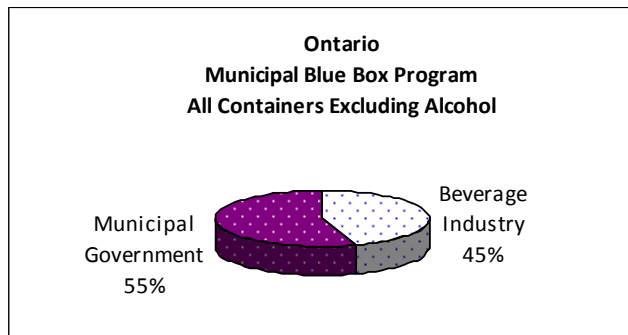


Beverage Industry:

As programs develop to capture beverage containers through curbside recycling programs and away-from-home collection systems, industry is being mandated to help finance these programs, and eventually take them over for 100% industry responsibility.

Currently, Ontario and Quebec are the only provinces where industry directly picks-up a share of the program costs. More specifically, industry pays directly based on the amount and type of packaging that was sold into the Ontario residential marketplace.

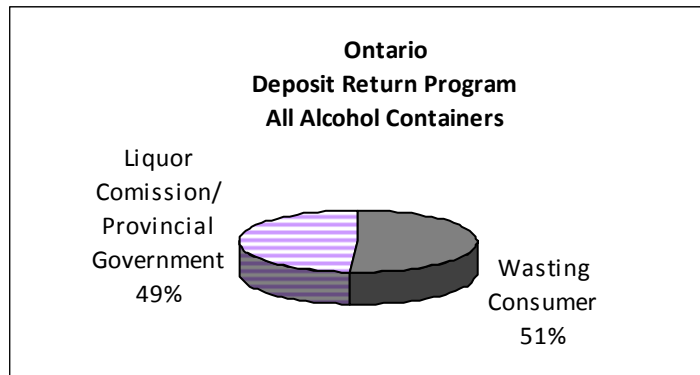
Quebec's deposit return program is also ultimately a cost to industry, but this cost is low or may actually run a profit because wasting consumers and material revenue make-up the shortfall. It is assumed that at a performance level in the mid 70s, (i.e. 74% - 76%) the program "pays for itself". Actual program costs are not available, but reasonable estimates can be obtained²⁶.



²⁶For operating data, revenues and costs please contact CM consulting directly at (416) 682-8984 or morawski@ca.inter.net

Provincial Government/Liquor Commission:

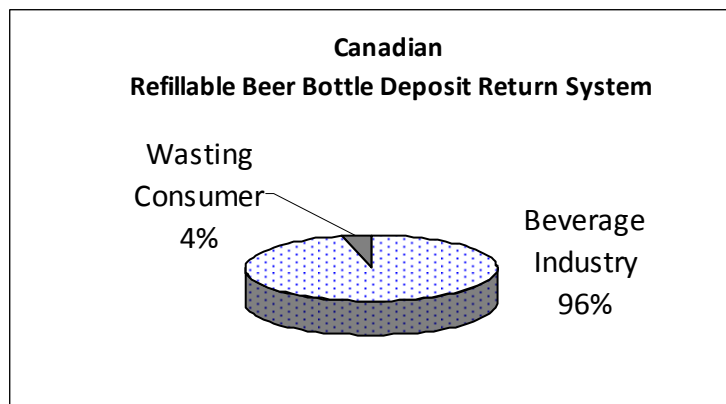
In Ontario's deposit return program for wine and spirit containers, the costs are split between the Provincial liquor commission (the LCBO) and the wasting consumer. The liquor commission pays about 3.8-cents per unit sold for the program. Consumers that return their container bear no share of the financial burden.



Domestic Refillable Beer Industry:

The Canadian domestic beer industry is unique in North America. Set-up as a voluntary initiative, the industry collectively manages Industry Standard Refillable Bottles (ISBs). Founded on a deposit return to retail program, brewers share standard bottles and self finance their distribution and reverse distribution.

While industry receives some unredeemed deposits to help off-set costs, this revenue is minimal because the return rates are so high. The chart below depicts Who Bears the Share for the refillable beer bottle program. It assumes a greater than 95% industry share.



5.2 Summary of Analysis

The *Who Pays What* analysis confirms that in British Columbia, Alberta, Saskatchewan, Manitoba, Nova Scotia, Newfoundland and New Brunswick (for liquor), Yukon, and Northwest Territory, the beverage industry bears no costs to run the provincial collection and recycling program.










In each of these provinces, some of the system costs are borne by the consumer that chooses not to return their container – the “wasting consumer”.

In addition in most of these provinces recycling consumers must also bear part of the cost burden – that which is charged to them (via CRF; EHC; RFF, CHF, and half-back) and not-refundable. This excludes Ontario’s deposit return program for alcohol; Quebec’s program for beer and soft drinks; and all refillable beer return systems throughout Canada.






Significant portions of consumer fees (EHC, RFF, CHF and Half-Backs) are used as surplus funds for other provincial diversion and environmental initiatives.

Beverage producers or first importers (including milk) in Ontario and Quebec (excluding soft-drink and beer brandowners) are required to pay levies on all their packaging sold into the residential stream, which in 2008 was used to finance about 45% of the total net costs of curbside recycling, with performance rates of under 50%.

PART 6 – Provincial Contacts and Data Sources

| Province | Contact | Phone /Fax | Web Site & Logo |
|-------------------------|---|--|---|
| British Columbia | Encorp Pacific (Canada) Neil Hastie, President and CEO 206–2250 Boundry Road. Burnaby, British Columbia V5M 3Z3 | Phone: (604) 473-2400 Fax: (604) 473-2411 |  www.encorpinc.com |
| British Columbia | Brewers Distributor Limited 1711 Kingsway Ave. Port Coquitlam, British Columbia V3C 0B6 | Phone : (604) 927-4051 Fax: (778) 284 2875 |  www.bdl.ca |
| Alberta | Brewers Distributor Limited Ted Moroz, President 11500 – 29 th Street East. Calgary, Alberta T2Z 3W9 | Phone : (403) 531-1000 Fax: (403) 531-1025 |  www.bdl.ca |
| Alberta | Alberta Beverage Container Recycling Corporation Guy West, President and General Manager 3617 Ogden Road. S.E. Calgary, Alberta T2G 4N6 | Phone: (403) 264-0170 Fax: (403) 264-0179 |  www.abcrc.com |
| Alberta | Beverage Container Management Board John Bachinski, Managing Director #750, 10707 - 100 Avenue Edmonton, Alberta T5J 3M1 | Phone: (780) 424-3193 1-800-424-7671 Fax: (780) 428-4620 |  BEVERAGE CONTAINER MANAGEMENT BOARD |
| Saskatchewan | Brewers Distributor Limited Ray Vandale, Manager of Operations 400 Dewdney Ave. East P.O. 3057 Regina, Saskatchewan S4P 3G7 | Phone: (306)-924-9667 Fax: (306)-352-3739 |  www.bdl.ca |
| Saskatchewan | SARCAN Recycling Ken Homenick 111 Cardinal Crescent Saskatoon, Saskatchewan S7L 6H5 | Phone: (306) 933-0616 Fax: (306) 653-3932 |  www.sarcana.sk.ca |

| Province | Contact | Phone /Fax | Web Site and Logo |
|-----------------|---|--|---|
| Manitoba | Brewers Distributor Limited Barry Booth, Manager of Operations Unit 300-1370 Sony place Winnipeg, Manitoba R3T 1N5 | Phone: (204)-958-7930 Fax: (204)-772-6538 |  www.bdl.ca |
| Manitoba | Multi Materials Stewardship Manitoba Ken Friesen 283 Banntyne Ave. Suite 200, Winnipeg, Manitoba R3B 3B2 | Phone: (877)-883-5828 Phone: (204)-953-2013 |  http://www.stewardshipmanitoba.org/ |
| Manitoba | Canadian Beverage Container Recycling Association, Ken Friesen, Executive Director 283 Bannatyne Ave, Suite 200, Winnipeg, Manitoba R3B 3B2 | Phone: (204)-942-2284 | - |
| Ontario | The Beer Store Ted Moroz, President 5900 Explorer Drive Mississauga, Ontario L4W 5L2 | Phone: (905) 361-1005 Fax: (905) 361-4289 |  www.thebeerstore.ca |
| Ontario | Stewardship Ontario Gemma Zecchini, CEO 21 St. Clair Ave. East, Suite 503 Toronto, ON M4T 1L9 Tel: 416-323-0101 Fax: 416-323-3185 | Phone: 416-323-0101 Fax: 416-323-3185 |  www.stewardshipontario.ca |
| Ontario | Waste Diversion Ontario Glenda Gies, Executive Director 4711 Yonge Street, Suite 1102 Toronto, Ontario M2N6K8 | Phone: (416) 226-5113 Fax: (416) 226-1368 |  www.wdo.ca |
| Quebec | Boissons Gazeuses Environnement Édouard Darche 100, rue Alexis-Nihon St., Suite 406 St. Laurent, Québec H4M 2N9 | Phone: 514-747-7737 1-877-226-3883 Fax: 514-747-3606 |  www.bge-quebec.com |

| Province | Contact | Phone /Fax | Web Site and Logo |
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| Quebec | Association des Brasseurs du Quebec Phillipe Batani, Executive Director 1981 McGill College, Suite 475 Montréal, Quebec H3A 2w9 | Phone: (514) 284-9199 Fax: (514) 284-0817 |  L'ASSOCIATION DES BRASSEURS DU QUÉBEC www.brasseurs.qc.ca |
| Quebec | Recyc-Quebec Réal Brossard 141, Avenue du Président-Kennedy, 8e étage Montréal (Québec) H2X 1Y4 | Phone : (514) 352-5002 Fax : (514) 873-6542 |  www.recyc-quebec.gouv.qc.ca |
| Quebec | Éco Entreprises Québec Maryse Vermette Président 1600 Blvd. Rene Levesque O. Bureau 600, Montreal, Quebec H3H 1P9 | Phone: (514) 987-1491 Toll free: 1-877-987-1491 Fax: (514) 987-1598 |  www.ecoentreprises.qc.ca |
| New Brunswick | Encorp Atlantic Inc. Pierre Landry Box 65 Moncton, New Brunswick E1C 8R9 | Phone: (506) 532-7320 Fax: (506) 533-7006 | ENCORP www.encorpatl.ca |
| New Brunswick | NB Liquor Peter Slipp 170 Wilsey Rd. P.O. Box 20787 Fredericton, New Brunswick E3B 5B8 | Phone: (506) 452-6826 Fax: (506) 462-2024 |  www.nbliquor.com |
| New Brunswick | Rayan Investments Murray Cruikshank, President 1635 Berry Mills Road, Moncton, New Brunswick E1E 4R7 | Phone: (506) 858-1600 Fax: (506) 852-9102 | - |
| Newfoundland & Labrador | Multi-Material Stewardship Board Paul Russell P.O. Box 8131 , Station A St. John's, Newfoundland A1B 3M9 | Phone: (709) 757 3686 Fax: (709) 753-0974 |  www.mmsb.nf.ca |

| Province | Contact | Phone /Fax | Web Site and Logo |
|------------------------------|--|--|---|
| Nova Scotia | Resource Recovery Fund Board William Ring Chief Executive Officer 14 Court Street Suite 305 Truro, Nova Scotia B2N 3H7 | Phone: (902) 895-7732 Fax: (902) 897-3256 |  www.rrfb.com |
| Prince Edward Island | Ministry of Environment, Energy and Forestry John Hughes Director of Special Projects Jones Building, 4th and 5th Floors 11 Kent Street P.O. Box 2000 Charlottetown, PE C1A 7N8 | Phone: (902) 368-5035 Fax: (902) 368-5830 |  www.gov.pe.ca |
| Prince Edward Island | Island Waste Management Corporation Gerry Moore, CEO 110 Watts Ave. Charlottetown, PE C1E 2C1 | Phone: 902-894-0330 Fax: 902-894-0331 Toll free 1-888-280-8111 |  www.iwmc.pe.ca |
| Yukon | Environment Yukon Government of Yukon Jennifer Peterson Environmental Protection Analyst Box 2703 (V-3A) Whitehorse, Yukon Canada Y1A 2C6 | Phone: 867-667-5652 Fax: 867-393-7197 |  www.environmentyukon.gov.yk.ca |
| Northwest Territories | Department of Environment and Natural Resources Government of the Northwest Territories Diep Duong, Solid Waste Specialist P.O. Box 1320 Yellowknife NT X1A 2L9 | Tel: (867) 873-7178 Fax: (867) 873-0221 |  http://www.gov.nt.ca/ |

Information and Data Sources

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|------------------------------------|--|--|
| British Columbia | Sales & Recovery Data non-alcohol & alcohol | Encorp Pacific Annual Report 2008 http://www.encorp.ca/ar2008/ |
| | Financials non-alcohol, wine, spirits and import beer and cider | Encorp Pacific http://www.encorp.ca/ar2008/ |
| | Recovery tonnage – domestic beer | Brewers Distributors Ltd. 2008 |
| Alberta | Sales & Recovery Data domestic beer | BCMB Annual Report – 2008 http://www.bcmb.ab.ca/news-articles.html |
| | Financials, Sales & Recovery Data - non-alcohol, wine & spirits and imported beer | Alberta Beverage Container Recycling Corporation Annual report 2008 - http://www.abcrc.com/cfm/index.cfm?lt=103&ld=1&se=37 |
| | Sales & Recovery Data - refillable beer Milk tonnage | BCMB Annual Report – 2008 http://www.bcmb.ab.ca/news-articles.html Alberta Dairy Council |
| | Recovery tonnage – domestic beer | Brewers Distributors Ltd. 2008 |
| Saskatchewan | Financials, Sales & Recovery Data - non-refillables | SARCAN Annual Report 2008-2009 www.sarcsarcan.ca/links/Annual%20Report%2008-09.pdf |
| | Recovery tonnage – refillable beer | Brewers Distributors Ltd. 2008 |
| Manitoba | Recovery Rates | Manitoba Product Stewardship Corporation Annual Report 2008 http://www.mpsc.com/ Multi Material Stewardship Manitoba |
| | Recovery tonnage – beer containers | Brewers Distributors Ltd. 2008 |
| Ontario | Municipal recycling costs and fee information | Stewardship Ontario 2008 data year http://www.stewardshipontario.ca/bluebox/fees/fees_setting.htm |
| | Sales & Recovery Data - Beer (not including non-TBS listed imports) | The Beer Store – Responsible Stewardship 2008-2009 http://www.thebeerstore.ca/AboutUs/environmental_leadership.asp |
| Quebec | Municipal recycling costs and fee information Municipal collection of beverage containers | Eco-Entreprises Quebec http://www.ecoentreprises.qc.ca/anglais/tarif.html |
| | Sales & Recovery Data - soft-drinks & non-refillable beer; recovery data bi-metal & gabletop curbside. | Recyc-Quebec ; http://www.recyc-quebec.gouv.qc.ca/client/fr/programmes-services/consignation/statistiques.asp |
| | Sales & Recovery Data - refillable beer | Brewers Association of Canada – 2008 Statistical bulletin http://www.brewers.ca/UserFiles/Documents/pdfs/eng/statistics/asb/2008/2008%20annual%20statistical%20bulletin/index.html |
| Nova Scotia | Financials, Sales & Recovery Data - non-refillables | Resource Recovery Fund Board 2008-2009 |
| | Sales & Recovery Data - refillable beer | Brewers Association of Canada – 2008 Statistical bulletin http://www.brewers.ca/default_e.asp?id=27 |
| New Brunswick | Sales & Recovery Data - non-alcohol | Encorp Atlantic 2008 |
| | Sales & Recovery Data - Liquor | Provincial Government |
| | Sales & Recovery Data - refillable beer | Brewers Association of Canada – 2008 Statistical bulletin http://www.brewers.ca/default_e.asp?id=27 |
| Newfoundland & Labrador | Financials, Sales & Recovery Data - non-refillables | Multi-Materials Stewardship Board 2008-2009 |
| | Sales & Recovery Data - refillable beer | Brewers Association of Canada – 2008 Statistical bulletin http://www.brewers.ca/default_e.asp?id=27 |
| Yukon | Sales & Recovery Data all containers | Environment Yukon |
| Northwest Territories | Sales & Recovery Data all containers | Department of Environment and Natural Resources |